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This number is dedicated

to

DR. RUTH WHEELER

for her untiring activities in behalf of the American Dietetic Association

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Correction

Name of hospital which appeared in June issue opposite page 1 should be Jewish Hospital of St. Louis, and not Barnes Hospital.

Vol. 3, No. 2 SEPTEMBER, 1927

The Journal of

The American Dietetic Association

THE EFFECT OF DIET UPON REPRODUCTION[1]

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There has been so much misapprehension in regard to the effect of diet upon reproduction that it is most important at the present time to review the extent of our knowledge of this subject. It is well known that the diet or ration of breeding animals has a great effect on the number and quality of young which are produced. There is an ever increasing wealth of experimental evidence of the influence of various elements of the diet, whether in greater or less amount, upon the function of reproduction under laboratory conditions. The question naturally arises as to how great this same influence may be on human reproduction and it is the purpose of this paper to try to answer this question as far as the state of our present knowledge will permit. Much of this effect will have to be deduced by analogy from the experimental studies of animals since as yet there have been practically no adequately controlled studies on the human race. A word of caution at this point will not be out of place in regard to the drawing of too definite conclusions from experimental studies alone. In general, it is rare for the degree of deficiency of any human dietary to be sufficient to produce actual sterility and therefore it is idle to expect that many cases of human sterility will be susceptible of relief from dietary treatment alone. Slight deficiencies may, and almost certainly do, lower fertility, but the production of actual sterility is rare indeed. That does not mean that the study of diet in regard to reproduction is not of the greatest importance, nor does it mean that treatment by changes in diet may not be extremely useful in raising fertility. It is possible also that changes in the general nutrition produced

[1] Read before the Massachusetts Dietetic Association, February 8, 1927.

by diet may, by means of changes in the endocrine balance, have very important results on this function. For example, it is not uncommon when dealing with patients who have for some reason or other ceased to menstruate, and at the same time have become obese, to find that a reduction of weight produced by changes in diet may help restore the menstrual function and permit conception to take place.

With these preliminary considerations in mind let us then, as I have said, proceed to take account of stock of the actual knowledge which we have. In making this survey I shall present to you a summary of the experimental studies as far as they are available of the effect of changes in each of the various elements of which our foodstuffs are composed. I shall then review briefly the common sources of these elements in relation to the common foods; and finally outline very roughly how these foods should be combined to form diets useful in the various phases of the reproductive life of the individual.

The elements of which I shall speak are the proteins, the carbohydrates and fats, certain mineral salts, in particular calcium, phosphorus, iodine and iron and the various vitamines. First, then, as to the proteins—it is of course well known that these are built up from the combination of various amino-acids. Much work has been done by Osborne and Mendel (1) showing the effect of individual amino-acids and purified proteins upon growth and nutrition. Reproduction is in a way a special phase of growth in general and therefore proteins which fail to cause normal growth would presumably interfere with reproduction. So far, however, there have been no actual experiments to prove this but it is of course from the practical point of view, a relatively unimportant subject because no human dietary would ever be limited to a single protein. Work has been done upon the effect of various percentages of protein on reproduction. The best known experiments are those of Evans (2) on the oestrous cycle of the rat. The stage of reproductive activity which corresponds with the time of ovulation can be recognized accurately by examination of vaginal smears. On normal diets with 18 to 20 per cent protein oestrus recurs every five days. When the per cent is as low as 10 to 15 oestrus occurs less often, perhaps every ten days. When the per cent of protein is as low as 5 oestrus does not occur at all. It is also well known to poultrymen (3) that in order to get maximum egg production there must be an adequate amount of protein. They find that protein from animal sources is much more efficacious than that from vegetable sources alone. Dairymen (4) also have long realized that maximum milk production requires a fairly high percentage of protein in a cow's ration.

It has been clearly shown that of themselves neither fats nor carbohydrates are necessary to reproduction. Evans (5) carried out a large series of experiments in which he left out entirely either the fat content or the carbohydrate from his otherwise adequate diets. In neither case was there the slightest effect upon the regular recurrence of oestrus. Fats of course often have a secondary importance since some of them may serve as carriers of the fat soluble vitamines. They are also naturally important in regard to digestion, etc., but in the sense in which we are now considering them neither they nor the carbohydrates have any specific function except that of supplying a source of energy.

There are many mineral elements which go to make up the human body. Many of these occur only as traces and it is not known whether they are important or not. For instance, there is a trace of fluorine in the bones and teeth, but as far as I am aware no one has ever fed animals a fluorine free diet in order to find out the possible relationship between the presence or absence of this element and normal growth and reproduction. The only minerals about which anything is known in this respect are the ones I have already mentioned, calcium, phosphorus, iodine and iron. As a practical matter calcium and phosphorus can be considered together because of their presence in combination in the bones. These are made up largely of a mixture of calcium carbonate and calcium phosphate. It is obvious therefore that growth would be impossible without a liberal supply of these elements since there can be no proper growth without a corresponding growth of skeletal supports. It should also be said that for the proper utilization of calcium and phosphorus in the diet a third element, vitamine D, is also necessary. More will be said of this in its proper place. It may be surprising to some of you who have not thought the matter out to have me speak of the effect of certain elements upon growth as if that were also an effect upon reproduction. When you stop to consider that reproduction involves the growth of the foetus with proper bone formation in utero and also the production of milk rich in growth-producing substances during the period of lactation you will appreciate that I am using the term reproduction in its broadest sense. For these very reasons anything which is conducive to normal growth and development must be equally important from the point of view from which this paper is written.

Absence of calcium from the diet has relatively little effect upon ovulation or the early stages of pregnancy with the exception of course that in case of the hen the production of eggs, because of the extra requirement for shell formation, may be markedly interfered with. With the higher

mammals, the bones of whose young are calcified at birth, calcium deficiency may be a very serious matter. If the deficiency is small the foetus seems to be able to draw what calcium it needs from the mother's bones and teeth, but these, particularly the latter, must necessarily suffer and many a woman can testify to the existence of this calcium drain by the condition of her teeth after several pregnancies. If, however, the deficiency is great premature births of weak or dead young are common; in fact what might be referred to as the pioneer experiment on the effect of diet on reproduction which was carried out at the Wisconsin Experiment Station by Hart, Steenbock and Humphrey (6) in 1911 showed this very thing with cattle. A recent paper of my own (7) which has just appeared in the Journal of the American Medical Association deals with this same subject in the rat. This latter animal being small and having a short time of pregnancy gives birth to young whose bones are composed practically entirely of cartilage. For that reason deficient calcium has little effect upon pregnancy. When, however, these young rats are allowed to nurse mothers whose diets are deficient in calcium two things happen. In the first place the young themselves make very poor growth and rarely survive the time of weaning, and, in the second place, the mothers suffer such a calcium drain that they develop caries of the teeth and their bones become lighter and more brittle. Simmonds (8) has reported that after a number of lactations these mothers on the poor calcium diet may suddenly die. It would carry us too far afield to attempt to cover more of the experimental work which has been done with calcium and phosphorus but enough has been said to show the extreme importance of these two elements in reproduction.

The next inorganic element of which I wish to speak is iodine. The relationship between iodine and goitre is of course well known to all of you. The subject however is far from being exhausted. There are many questions which have not yet been answered. It is recognized for instance that there is a disease of swine which occurs in the goitre region where all the young are stillborn and have no hair. This peculiar condition can be entirely relieved by feeding the brood sows iodine (9).

No one knows whether the diseases which we recognize in human beings as due to over or under activity of the thyroid, may not be capable of control through diet as is the incidence of simple goitre. It is a fact that either of these conditions may seriously interfere with normal reproduction and it seems only common sense when dealing with human reproduction to be sure that there is an adequate source of iodine in the food.

The fourth mineral element, iron, is of obvious importance because of

the necessity of its presence in the blood. Where the iron is low, that is where there is any degree of anaemia, the oxygen supplied to the tissues is markedly reduced and hence the general cell activity is bound to suffer. The particular relationship to the cell activity of reproduction has long been recognized. It is of course well known that in severe anaemia or chlorosis one of the principal symptoms may be absence of menstruation. This phenomenon may be brought about either because of the tendency of the body to conserve further loss of blood and iron or because the cell activity of the ovary has been reduced by lack of oxygen.

Having thus briefly outlined the relationship of the ordinary dietary elements to reproduction let us now turn to a consideration of the effect of the socalled accessory elements or vitamines. I need not take up valuable space in reviewing the facts about the vitamines which are already well known. I shall confine my remarks to a short statement of what is known about their relationship to reproductive activity alone. As you all know Fat Soluble A is necessary for growth and this is just as true for intra-uterine growth as it is for the newborn animal. There is now ample evidence to show that stillbirths or absorption of the foetus will occur on diets which are deficient in this regard. Nursing young whose mothers are kept on fat soluble A free diets soon cease to grow and if the diet is continued die. The oestrous cycle also can be made to occur less frequently or cease altogether. As far as I am aware there is no specific effect upon the adult male except through the gradual failure to maintain weight and health. Where the water soluble B is absent or very low, however, testicular atrophy develops and of course reproduction suffers when the deficiency is great enough to affect the health of either sex. Little is known in this regard about slight deficiencies in the anti-scorbutic factor. I have no question however that any deficiency great enough to produce symptoms must have some effect. I have seen one patient who developed scurvy after being on a certain diet prescribed for indigestion for some months and who at the time I saw him showed testicular atrophy and proved to be completely sterile. I have already mentioned the anti-rachitic vitamine or fat soluble D. As you all know it is the function of this vitamine to promote the metabolism of calcium. It is therefore important from a secondary point of view in relation to the intra-uterine life of the foetus to which it is supplied by the mother through diet or exposure to ultraviolet light. There is such a thing as intra-uterine rickets as proved by recent X-ray studies of the bones of new born babies and it is of course obvious that the mother must take a liberal supply during lactation. There have been some recent interest-

ing experiments with poultry. Egg production is distinctly increased by feeding cod liver oil to the hens or exposing them to ultra-violet light. Furthermore the hatchability, or in other words the vitality, of the incubated eggs is much greater (10). FinallyI should like to say a few words about Evans (11) fat soluble vitamine E. When this vitamine is absent or low pregnancy occurs but the developing foetuses all undergo absorption about the fifteenth day of gestation (the length of this period for the rat is twenty-one days on the average). Male animals if long on the deficient diet develop atrophy of the testicles. It is a remarkable thing that in this instance growth and maintenance may be normal for either sex and the only effect of the deficiency seems to be the resulting sterility.

I wish now after this very much abbreviated outline of the experimental background to remind you of the sources of the particular elements about which I have been speaking in the various foodstuffs, and I shall then go on to a discussion of certain dietary programs. I realize of course that what I am about to say is thoroughly familiar to every one of you but I think a review of the situation will be helpful in adjusting the point of view to the particular object we have in mind. I shall not of course take up your time with any discussion of the proteins, fats or carbohydrates beyond reminding you once more that as far as we have any evidence proteins from animal sources meat, fish, eggs or milk products are more efficacious in promoting normal reproduction than those from vegetable sources alone. It is the distributions of the mineral elements and vitamines in natural foods about which I wish to say a few words. First, *calcium*. Practically speaking it is impossible for a human being to get enough calcium at a time when there is any particular demand for this element, as for instance, during growth, pregnancy or lactation, without taking milk or some milk product, such as cheese. It is perfectly true that the cow is able to manufacture milk containing calcium from a diet of green vegetables but it would be difficult for a human being to duplicate this performance. A glance at the various analyses, for instance, those in Sherman's (12) excellent book, will show that there is calcium in egg yolk, dried beans and to a less extent in many vegetables and nuts, but it is useless to rely on these as adequate sources. Furthermore milk is also rich in phosphorus and therefore furnishes an ideal food for any of the phases of reproduction where calcium and phosphorus are needed. There is also of course a good deal of phosphorus to be obtained from whole cereals. Iodine is contained in the drinking water and in vegetables grown in regions near the ocean but where the soil has been recently glaciated, or is far from the sea, there is apt to be practically

no iodine present. Since iodine is present in sea water in appreciable amounts undoubtedly the best source of this element in our diets is to be found in sea food of various kinds. Where it is difficult to get fresh sea fish on account of distance from the ocean it is always a practical matter to take canned fish and this has recently been recommended as a much better source for iodine than the putting of iodide into drinking water or table salt. The most potent source of iron is undoubtedly liver. Next come red meat, egg yolk, oatmeal, dried beans and peas and some vegetables particularly spinach.

I need only briefly sketch the distribution of the various vitamines. A is of course found in butter, whole milk, egg yolk, leafy vegetables, cod liver oil, the germs of grains etc. B is found in whole cereals, particularly in the embryo of the grain and, due to the fact that they contain fragments of this embryo, in certain-by-products such as middlings and bran. There is also a certain amount in egg yolk, whole milk and certain vegetables. Yeast is particularly rich in this factor. The C vitamine is found in the juice of citrus fruits, and of certain raw vegetables, particularly those which are somewhat acid, such as tomatoes. The D vitamine is contained in egg yolk, certain leafy vegetables and to less extent in butter. The chief source however is to be found in cod liver oil. Finally the E vitamine is found in certain raw vegetables particularly lettuce, the germs of certain grains and to a slight extent in butter or whole milk, if the cows have been on fresh alfalfa. Since the source of this fat soluble vitamine closely parallels that of the other two fat soluble vitamines A and D it is all the more remarkable that cod liver oil, which is rich in the former two, contains none of the E.

The remark which I have just made relative to the difference in the vitamine content of milk, depending upon the diet of the cow producing, it applies in general to many other foods which may be sources of vitamines under normal conditions. For instance, the vitamine content of butter depends largely on how the cows have been fed and housed, which in turn often depends upon the season of the year. It has been shown also that the bleached stems and leaves of celery contain little or no vitamine whereas the green leaves are undoubtedly far superior. There are other ways also in which the vitamine content of foods may be altered. This is notably the case with the anti-scorbutic vitamine C. This is weakened by ordinary cooking if at all prolonged and exposure to any high temperature would destroy it altogether. Enough has also been said to indicate that the processes of milling by the removal of the valuable germ portion of the cereal grains may greatly alter the vitamine content of such foods.

In order to sum up what has been said about the various foods I will indicate briefly what to me seem to be the essentials of a normal balanced diet from the point of view of reproduction. A normal diet should include meat once a day to act as a source of animal protein and of iron, sea fish once or twice a week to supplement the protein of the meat and to supply iodine, one egg a day for its protein contribution, but even more because it is rich in the fat soluble vitamine and also contains iron. Two to four glasses of milk should be taken daily depending on circumstances to supplement the protein, supply calcium and phosphorus and both fat and water soluble vitamines; fresh fruit should be taken once a day to serve as a source of the C vitamine; liberal amounts of butter should be included for the A vitamine, and some whole grain cereal should be taken to supply B. In addition there should be liberal amounts of leafy vegetables such as lettuce, spinach, etc., some one of which should be taken raw. This is best accomplished by including a salad. These vegetables are rich in the vitamines and also contain useful amounts of the mineral salts. Of the root vegetables probably the best are carrots. It is well to include some of the seeds during the course of the week such as peas or beans, and similarly nuts are useful adjuncts. No mention has been made of cheese and this would hardly be necessary if ample milk is taken, but where there is difficulty in this regard cheese is often very useful. Under certain conditions it is necessary still further to supplement such a diet by the addition of some substance particularly rich in one or another of the vitamines. For this purpose cod liver oil or yeast maybe very useful. No mention has been made of sweet or starchy foods. The purpose of these is purely to supply needed energy. They can be safely left out when it is important, for instance, to lose weight or they can be added in greater or less amount when the contrary is the case.

Having thus outlined what I may call the fundamentals of diet from the point of view of reproduction I wish to say a few words about the conditions in which diet can be expected to be of material benefit. For this purpose I shall consider reproduction to include anything connected with the reproductive life of the individual, namely, adolescence, the full fertility of adult life, pregnancy, and lactation. Theoretically reproduction should also include growth to adolescence, thus completing the cycle since such growth is obviously a necessary preparation for further reproduction. The same dietary considerations, however, which are important in adolescence are those which are important in growth so that it is unnecessary thus further to subdivide the subject. It is because adolescence is a period of such severe strain on the individual that slight

deficiencies in diet may at this time produce most serious effects on later function. To my mind there can be no question, though I lack actual proof with human beings, but that many of the failures of development and low fertilities which we see so frequently in adult life, as a cause for sterility, are produced by poor diet during puberty. If the diet which I have outlined above is followed carefully and excess of sweets and rich food is forbidden I believe that such failures of development would be rare indeed. Adequate growth and the rounding out into adult form and strength can easily be controlled in the absence of disease. The scales will permit a regulation of the energy producing foods, though with normal exercise and living conditions in general this matter usually regulates itself. These same considerations apply just as strongly to adult life except that it is much rarer to see ill effects from poor diet at that time because of the relatively slighter strain under which the individual is living. A word of caution should be added however in regard to injudicious dieting to lose weight. In fact it is by controlling the nutrition as a whole that the dietitian is able to exert the greatest effect upon reproduction in adult life. The woman who has become obese with the inactivity of marriage, and in whom the menstrual periods have consequently become scant or absent, is usually sterile but she can often be brought back to normal fertility if she is dieted properly down to her normal weight. For such dieting it is essential that there be no deficiency in regard to protein, mineral salts or any of the vitamines, but sugar and starch can be safely omitted. It is usually also important to increase exercise. It should also be said that since many of these patients show a deficient thyroid secretion it is therefore always advisable that dieting of this sort should be done under the direction of a physician.

With the adult who is underweight still another problem presents itself. It is common for such individuals to be of low fertility, sometimes because of a general under development and sometimes because of a general rundown condition. In either case the gaining of weight up to normal is often a great aid in restoring fertility. To do this a sufficient amount of starches and easily digested fats must be added to what I may call the "base ration" which I have outlined above. It is often advisable to feed frequently and instead of increasing exercise to increase the amount of rest in order to promote assimilation. You will notice in all this talk that I have said no word in regard to the calories which a given food may be capable of producing. As a practical matter it is rarely necessary to go into great detail in this regard with patients and the only times when it is ever of great importance would be when dealing with the

adult in an attempt to have him gain or lose weight. Even under these conditions the scales are far more important to weigh the patient than to weigh the food and calculate the calories.

The diet of pregnancy and that of lactation are very similar since the drain upon the mother of the nursing child is only the same drain caused by the growing fetus in greater degree. There are several important points which apply to both: in the first place there must be an adequate source of calcium and phosphorus. The daily milk requirement is in the neighborhood of one quart. The other vitamine elements and the other minerals are well taken care of in the "base ration." It is therefore my custom to prescribe this with the addition of the extra amount of milk and then caution the patient in regard to the danger of gaining too much weight. The woman who begins a pregnancy weighing about what she should for her height and age ought not to gain more than about fifteen pounds during the whole pregnancy. If she does it means that she herself is putting on weight. This is a dangerous thing because it makes her more likely to give birth to a baby weighing above the average and it is also according to Friedman (13) liable actually to prolong the duration of labor. It is furthermore a handicap when it comes to nursing the baby as the woman who is overweight is a distinctly poorer milk-producer. If a woman begins a pregnancy much under weight it is often desirable to utilize the tendency to gain which pregnancy exhibits. In her case depending upon the circumstances the gain allowed may be considerably greater. With the woman who is overweight, on the contrary, it is sometimes desirable that there should be an actual loss as pregnancy progresses provided of course that no deficiency in the necessary elements is allowed to occur. Dieting of this sort also requires great judgment and should never be undertaken except with the cooperation and under the direction of the physician. A word in regard to proteins in pregnancy. There is a tendency with some physicians because of the increased risk of eclampsia and kidney disturbances in general unduly to limit the amount of protein. It should be remembered, however, that protein is a very important element in cell growth and must be supplied in adequate amount if mother and baby are not to suffer. Since the protein of meat seems to be more dangerous than that, for instance, from eggs, fish or milk the "base ration" has been so designed that meat will be taken as a rule only once a day; exceptions of course may occur. During lactation however where the danger of kidney complications no longer exists, and where it is known that a reasonable percentage in the diet is necessary to stimulate milk production, more may safely be taken.

In conclusion, I wish to emphasize again the importance of this subject about which there can, I believe, be no difference of opinion. When reproduction is looked upon as the raising of new healthy stock the subject almost automatically assumes the importance which it deserves. It is a strange commentary upon human nature that the farmer will spend much time and money on the study of how best to feed his animals for growth and reproduction, and will often countenance a diet in his own family which is calculated to produce disturbances of the most serious nature. It is certainly one of the great benefits of modern dietary knowledge that our attention is being forcibly called to our own human requirements.

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FUNDAMENTAL BUYING PRINCIPLES AS APPLIED TO PERISHABLE FOODS

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Writing from the basis of an experience of many years in furnishing foods at wholesale both to markets which purchase to sell over the counter and to hotels, restaurants, steamship lines, railroads, college and school dining rooms and public institutions of many types which operate large dining rooms, it may be said that there has developed in the course of these years a recognition of certain fundamental principles which may guide buyers to the most favorable results both in point of cost and service efficiency.

One of the mental hazards and effective traps (to use golfing phraseology) into which so many inexperienced purchasing agents and dietitians fall is the theory that the purchase shall—as applied, for example, to beef, lamb, etc.—be made of whole cattle, whole lambs, etc., each part then to be applied to its best possible use.

I speak of this as a trap because a buyer following this course is forced to use the total variety of cuts in each animal, differing greatly in fitness and in value; and this almost infinite variety cannot by any possibility give uniform service to the consumer even in the largest institutions. The proportion of meat in relation to sirloins, rib roasts, clear meat of round steaks and roasts of the rump is always entirely out of ratio to the all-around requirements of any institution.

A smaller portion of the meat of each steer may be of very high value; and yet the needs of the institution may not require as much of this very high-value meat as may be found in a single steer. On the other hand, there may be altogether too little of the lower-value meat of uniform grade to satisfy the requirements of the inmates of the institution; therefore a portion of the high-value meat must, in order to use it up, be devoted to an uneconomic purpose, while tough and inferior portions of the carcass may be forced into use where a better quality should be supplied.

The secondary result of the experience of any intelligent buyer is that

practice will gradually modify this type of purchasing program and increase the use disproportionately of either forequarters or hindquarters; or perhaps take some of the sub-cuts of either forequarters or hindquarters so as to move toward a balanced proportion which will more nearly suit the needs of the clientele to be served. That amounts to feeling one's way in the right direction, but falls far short of the desired end. The principle toward which the buyer may be slowly feeling the way is to recognize frankly that if one has access to a wholesale house which has a sufficiently widely distributed trade to enable it to make use of the various clear meat cuts of whole cattle, then the astute buyer who has identified the precise cuts of beef which will be neither too good nor too poor and which can be procured in the precise quantity required will thereupon place orders for the predetermined grade and quantity of meat which provides the quality required at a cost which should be correctly ratioed to the budget. This placement of orders for the type of beef which will provide the lowest possible percentage of waste and the highest service value per dollar expended for a satisfactory grade will inevitably sharply lower the cost of food service supply for the institution which follows this plan.

This means of course that the buyer forces on the wholesale dealer the task of finding the best possible market for the cuts of the steer or lamb (some too good and some too poor in grade) which the buyer desires to avoid. The dealer with thousands of customers among all classes of trade is able to find an outlet for that which the institution buyer finds less suited to the needs of the particular institution.

There is a place for every part of every cut of a steer—and indeed a variety of places. It remains for the wholesale dealer to find the best one; and he is in a position to do so much more successfully than is the institution buyer, who cannot force an equally successful use within his own institution of the great variety of coarse cuts and varied values to be found in a single steer.

I have seen tests made in which a public institution has actually cut in half the cost of its beef bill and yet at the same time has served an equal number of meals with beef which on the whole proved more satisfactory to the consumers than the quality which they were served under the obsolete system of endeavoring to force the use of all the varied parts of whole cattle.

The Boston market is, as experts throughout the country are aware, the leading market for extra heavy cattle of high grade. The reason for this is that the general demand for heavy cattle which the early settlers in

this country brought over from England has been continued and as a result the buying public has become accustomed to paying appropriate prices for the coarse cuts of fine heavy cattle in preference to still choicer cuts taken from inferior and lighter grades.

The use of these heavy cattle results in supplying raw material for extra heavy wasteless cuts from which the bone has been removed. Varying standards are adopted with reference to the closeness of the trim, etc.

The most desirable types are the boneless wasteless cuts from fine cattle from which the inferior loose ends of meat have been removed and the solid piece of substantially uniform grade remains. These removed portions of meat of course readily find a place in the sausage factory, where they are utilized to full advantage. These boneless and wasteless cuts carry a variety of names. They are all properly cut, boneless and wasteless and readily find a fitting place in the dietary plans of institutions feeding or supplying food to very considerable numbers of people. The steak cut, for example, which is suitable for moderate-cost steaks and roasts, weighs from 20 to 30 pounds; a steak round top, boned and rolled, weighs from 20 to 25 pounds; round bottoms, 25 to 28 pounds; rib rolls, 30 to 45 pounds, a wasteless boiling piece, also acceptable for roasts and steaks when taken from prime cattle. Fancy briskets, weighing from 9 to 18 pounds, may be utilized in either corned or fresh form for boiling. The hotel roll, weighing about 20 pounds, one of the lowest cost pieces of meat, is used for roasting and boiling. This is usually worth about half as much per pound as the steak round top. At the present time the top grade of these hotel rolls is only 17 cents per pound for the wasteless lean meat. Boston boned sirloins, which were first obtainable in this market about twenty years ago, are now obtainable in a variety of sizes and in considerable variety as to flank trimming. The advantage of using the boneless loins is that the tenderloin sells as a rule at a higher price per pound; and thus as a credit against the cost of the whole loin furnishes a method by which the price of the sirloin steak from the same loin is made to cost less by reason of the higher credit value of the tenderloin.

No satisfactory method of promptly determining the desirable size and cut of sirloins and ribs which would best serve a given purpose has ever become of general use. We have suggested a method which seems more highly efficient than any which has yet been proposed; and that is to take the linear measure of the normal cut of sirloin or rib and ascertain the *cost per inch.* For example, a five rib roast which weighs 25 pounds and which is (say) eleven inches in length, the market value of which at the moment might be 30 cents per pound, would therefore cost $7.50 and

would in turn cost about 68 cents per inch. A 30-pound rib at the same cost per pound would ordinarily measure but one-half to one inch more than the 25-pound rib. The increase in both weight and cost over the first-named rib is 20 per cent. The increase in length is from 4.5 to 9 per cent. This illustrates the fact that the increase in weight of a growing steer expresses itself chiefly in the increase in girth and only moderately in the increase in length. The ratio of increase in girth to length is about three to one. An approximate difference in cost per slice of 11 to 15 per cent is the result.

The same principle holds true with respect to sirloins. The same method of computation may be followed except that it is possible to carry it much farther by taking the loin first with the suet removed and at the known price per pound and find its total cost. Next, remove the flank and find the cost per inch in that form. Remove the tenderloin and find the cost per inch in that form. Remove the bone, having credited the value of the flank and the tenderloin and the bone; then the remaining cost per inch of the slab of wasteless sirloin may be found. If steaks one inch each are determined upon, with two steaks to each slice, then in the event that the loin is twenty-one inches in length with 42 steaks other than those contained in the tenderloin, the cost may be readily ascertained and a basis for determining either the cost per portion served or the basis necessary for determining the cost for restaurant service may be readily fixed. Most dealers, if the purchaser desires it, will remove both the flank and the tenderloin and themselves provide a market for them which will limit the use by the buyer to the sirloin without waste other than the bone; or even the bone is now removed and the wasteless slab of sirloin with or without flank supplied to the purchaser.

The modern highly sanitary sausage factory operated under government supervision is a source of economical meat supply and the available variety is substantial. Generally speaking, it is desirable to confine one's purchases to government inspected plants, which do not permit the incorporation of flour, cereals or milk powder, with the consequent opening of the door to the introduction of water which the use of these elements will supply. The necessary result is the heavy diminution of meat content and the substitution of low-cost food elements carrying a large water content.

In most sections therefore it is desirable to purchase only sausage which upon the package bears the stamp of the United States Department of Agriculture, Bureau of Animal Industry, or which is made in states the laws of which give the same personal protection to buyers that is furnished under the federal regulations.

Within the past few years hams and even shoulders have been transferred to the list of meats which can now be procured in wasteless form; that is, with the skin altogether removed and the superfluous fat taken off and the remaining clear meat compactly tied together. When these items can be secured in wasteless form the handling labor in the kitchen is materially reduced.

Boiled hams are now thoroughly cooked; and as they are usually handled (particularly in the larger plants) by thermostatically controlled temperatures, the result is more favorable in point of uniform cooking excellence than can be secured by cooking at higher temperatures for shorter periods. Lower temperature cooking for longer periods produced a finer subdivision of the meat fibers and therefore added tenderness without increased shrinkage. In bacon one waste element is the unknown percentage of moisture contained in bacon which has been cured in pickle as compared with that cured by the dry process. Bacon which has been cured by the pickling process and then sliced rapidly evaporates the surplus moisture which in itself has been incorporated in the meat, ranging from 6 to 7.5 per cent, and which must at some time be evaporated either by the normal results of holding in or out of refrigerators or through the later shrinkage which comes with cooking. There is therefore a food and price value difference of 6 to 7.5 per cent between pickled and dry-cured bacon regardless of the added difference which exists in the cut and quality of the green meat before curing.

Within recent years there has been developed an appreciation of the fact that the dry-cure process produces a firmer bacon of better color and materially higher flavor. The fact that the first cost is higher and the final cost is no higher is now more generally understood. The higher price per pound of the dry cure merely anticipates the extra shrinkage which must take place in the pickle cure which carries this higher percentage of moisture.

Butter may now be purchased in individual bars, which in turn may be cut into portions of any desired size. Some close-figuring caterers are now supplying different size portions of butter for breakfast and luncheon, of a quantity which experience indicates represent most nearly the average normal consumption by the individual at one meal as compared with another. In the east the individual print is still highly popular and this may be procured in a variety of sizes, so that there may be opportunity to choose as among twenty-four, thirty-two, thirty-six and forty-two pieces to the pound.

High-grade butterine, which now in cost approximates a supply of two pounds for one of the high-grade butter, furnishes opportunity for very

substantial economies. To realize the economy of high quality, it is in most cases desirable to use the highest grade butterine or oleomargarine, the words being used interchangeably, because in certain sections of the country one word is used and in other sections the alternative is in more common usage.

Eggs. In recent years hot-oil sealed eggs are furnishing a convenient and efficient means of reducing the cost of fresh eggs because they will in so many cases take the place of eggs from nearby henneries. The combination of high-grade storage eggs, and shell-sealed stock, etc., provides a variety for every need.

Poultry which is this year ranging lower in price than last year is for this reason in more extensive use. The public still fails to take advantage of the fact that two 7-pound young hen turkeys when plump and well-fattened will supply more pounds and ounces of clear meat than one 14-pound young tom of the same general grade. The bones of two 7-pound hens weigh less than the bones of one 14-pound young gobbler. The percentage of white meat is higher in the female bird; and it is easier to serve, without the same amount of carving, the smaller joints of the 7-pound birds. Apart from this there is at this time the difference in market value of the hen turkeys of some seven cents per pound as compared with the young toms of double weight. It does of course require some additional labor on the part of the chef to prepare two 7-pound birds as compared with one 14-pound bird. The saving in cost at the present time would be more than 15 per cent.

Broiling chickens can now be supplied which vary not more than 2 ounces up or down from the given standard. This makes it possible to determine the cost with entire precision, to the consequent advantage of the treasury. A separate article might well be devoted to varieties of poultry, methods of feeding, reasons for selection or rejection of certain types, etc.; but space will not permit.

Fish. The development of the modern method of making fresh fish filets has two practical results: one, it reduces by about one-half the cost of transportation; and second it reduces by nearly 100 per cent the labor and general inconvenience of dressing fish. Nearly all the smaller fish have now been placed in the category of those available in filet form.

"Of the making of many books there is no end;" and while it might be interesting to the studious-minded element to discuss the many matters of importance relating to the more uncommon varieties of fish, shellfish, scallops, oysters and the imported canned fish specialties, as well as the very wide field which relates to preserved fruits, vegetables, etc., that is another story.

PRACTICAL PROBLEMS IN DIETETICS FOR THE MEDICAL STUDENT[1]

MARGARET McGOVERN

Chief Dietitian, Department of Dietetics, Boston City Hospital

It is readily understood why those who have never calculated, prepared or eaten corrective diets can know very little of the problems involved in such work. It was felt that medical students would have a better understanding of these problems if they could go to the diet kitchen and get first hand information by actually doing all these things. It was also thought that such experience would enable them to order diets more intelligently and more in sympathy with the patients' viewpoint.

At the suggestion of Dr. Francis W. Peabody, the fourth year Harvard Medical students at the Boston City Hospital have been offered such an opportunity during their two or three months' course on the medical wards.

The course as planned includes six exercises, two hours each, and is limited to six students. At each exercise a dietetic problem is given, selected, when possible, from the cases with which the students themselves are familiar, as this gives them a chance to study the patient's likes and dislikes, and his reaction to the diet.

Every effort is made to cover a variety of diets in the course, including those most commonly met with in the practice of medicine. For instance, one of the series of exercises included the following; two diabetic diets, one with a very high glucose-fatty acid ratio, and the other with a comparatively low ratio; two nephritic diets, one with only the protein restricted moderately, and the other with fluid restricted to one liter, salt to 1 gram and protein to 20 grams; two obesity diets, one with 1500 calories and the other with from 500 to 1000 calories. From this list it will be seen that the student has an opportunity to familiarize himself with some of the more common dietetic problems.

At the first exercise each student is given mimeographed sheets with the percentage composition of those foods most commonly used, a list of weights of foods with their equivalent household measurements, and a

[1] This course was worked out with the assistance and coöperation of Dr. Francis W. Peabody and Dr. Joseph T. Wearn.

retail price list. The diet prescription is then given, and any additional information necessary, such as the age and the weight of the patient, etc. From this material the student determines the grams of protein and the calories per kilo of body weight received by the patient, the glucose-fatty acid ratio of the diet, and the kinds and amounts of foods needed to meet requirement. The cost of food for day is also figured.

Following these calculations they attempt to divide the diet figured into well-balanced, palatable meals, and in turn translate the weights of the foods used into the equivalent household measurements. Having satisfied themselves with the problem, they present it at the next exercise for the criticism of the dietitian. This opens discussions which invite questions from the students and bring about the desired effect of making the exercise an informal one. The dietitian then selects one of the three meals usually the most unpalatable and poorly-balanced one, and the student weighs out the food and eats the diet he has prescribed. This test is often a severe one but it is noticed that the students always eat the meal they have planned, bravely, if not always with relish. This last step has been important as it emphasizes the need of attention to details in planning diets. After eating the meal the student writes his criticism.

Much time, of course, is spent in calculating the diet, determining the kinds and amounts of foods to use, and planning the meals. Frequently the diets which the student deemed excellent on paper he finds impossible on the plate. Many instances of this have occurred during the course. The following case is a typical example. A high fat diabetic diet had been ordered for a patient and one of the meals for the day planned by the student was about as follows.

	gms.
Steak	90
String beans	100
Tomatoes	100
Lettuce	30
Butter	30
Mayonnaise	45
Heavy cream	120
Coffee	

Of course the obvious difficulty was the distribution of the fat in such a way as to make the meal palatable. His method was to use the butter on the meat, tomatoes, and string beans, but even then the vegetables were practically floating in butter. Some of the heavy cream he put in the coffee but was only able to use about one-third of the amount he had ordered. He whipped the rest and mixed it with the mayonnaise. Little

realizing the volume of this amount of cream when whipped he was then faced with the problem of using over a half cup of this mixture. After completely covering the lettuce with it, he still had some over. Determined to eat all the meal he had ordered, he had a second cup of coffee and put in the remainder of the cream-mayonnaise mixture. His criticism of this meal was short but to the point. He suggested that anyone ordering such a diet be compelled to eat a similar meal. Later, however, he was shown that by more even distribution of fat among the three meals and by changing the foods about, the meal could be made palatable.

Visualization of amounts of the various foods has been difficult for those without any previous experience. Many have ordered 100 grams of lettuce or cornflakes for a meal, and having prescribed them they have made valiant attempts to eat them. One trial has usually been sufficient to convince them that a hundred grams of all vegetables and fruits do not yield servings of equal size. In these two cases there was enough for three servings instead of one.

The students are interested in finding out just what kind of foods and how much variety it is possible to get in a restricted diet, and how near a normal diet they can make it. They will frequently marvel that a man getting a very high fat diabetic diet with about 2500 calories will complain about being hungry, while another man, of approximately the same age and weight, getting only 1500 calories, but with fat quite low, as in an obesity diet, never seems to be hungry. But after they have eaten the first diet which is necessarily quite concentrated, and the other, which is quite bulky, they realize this is quite possible.

They all agree that the salt-poor low protein diet (about 20 grams of protein) is very flat tasting, furnishes rather meagre meals, with little chance for variety. After eating this diet they strongly feel that there should be absolute proof that it is really needed and that it will accomplish some good before it is ordered for anyone.

These contacts with actual planning and preparation of diets, though necessarily brief, have stimulated an interest in the handling of patients' diets. These students are the internes and practitioners of the future and the results of these exercises are beginning to show themselves by the more intelligent ordering of diets by the internes. It enables them, moreover, to consider the diet not only as so many calories, but as to taste, appearance, and its effect upon the patient. It brings about, in addition, closer coöperation between the physician and the dietitian which results in better care of the patient.

THE FOOD CLINIC AS A CENTRE FOR TEACHING AND TRAINING STUDENTS

FRANCES STERN AND JEAN REYNER

The Food Clinic, The Boston Dispensary

The Food Clinic of the Boston Dispensary is today an integral part of the Medical Clinic, and functions like other clinics in the Dispensary.

Patients to the Food Clinic, referred from any and all departments of the Dispensary, are required to pass through the Medical Clinic on the way, for physical examination, the record of the doctor's findings and diagnosis, and the doctor's food recommendations, i.e., for the data which, referred directly to the Food Clinic, form the basis of the dietitian's planning and supervision of the dietary treatment.

In the Food Clinic the dietitian ascertains from the patient the nature of his social environment, dietary habits, nationality, occupation, business activities, recreations, household relations, income, and other influencing factors that reveal themselves in the course of this individual conference. She is enabled, so, to understand the patient as he moves in his home and community, and to establish in him an attitude of interest and coöperation toward his diet treatment.

And upon these—the medical findings and recommendations, and the social picture obtained—the dietitian builds her diet scheme, fulfilling in it all scientific requirements, and at the same time adapting it to the patient's social necessities and possibilities. The diet must satisfy both dietitian and patient, and the planning of it is certainly both a science and an art. For in the one thousand patients a year, approximately, who are referred to the Food Clinic, and whose visits amount to more than four thousand in the year, fourteen nationalities are represented. It requires both understanding and ingenuity to prescribe diet for foreign-born people whose food practices and tastes differ so widely from the American.

Although the Dispensary cares only for ambulatory patients, yet it treats a great variety of diseases, of greater or less frequency and in different stages of development. To the Food Clinic come patients with diagnosis of overweight, underweight, constipation, gastric disturbances, tuberculosis, epilepsy, hypertension, nephritis, diabetes, anemia, pregnancy, rickets, and for correction of faulty food habits.

There is an outstanding difference in the situation of the hospital patient and that of the out-patient. The one is sure to receive everything that is needed for medical and dietetic care. When he enters the hospital ward, that is his habitation. But the out-patient is sure only of free medical treatment and medicine. His home is often unable to provide the food that effective treatment requires. In that case the Food Clinic turns to Social Service. So the doctor, the social worker, and the dietitian become a unit in service to the out-patient,—the doctor making the diagnosis, the dietitian translating the doctor's food recommendations into a definite, understandable diet plan, and the social worker aiding the patient, when necessary, in carrying out his diet at home.

It is a joint service, demanding an appreciation, on the part of each contributor, of the allied fields of medical, dietetic and social treatment.

At the meeting of the Massachusetts Dietetic Association, Miss Gertrude Spitz specified, as qualifications that the out-patient dietitian should possess, the following:

1. Knowledge of medical diagnosis in order to understand the patient's condition.
2. Knowledge of laboratory findings in order to check the diet against the body chemistry.
3. Knowledge of dieto-therapy in order to prescribe the diet.
4. Knowledge of economics, in order to provide, in so far as possible, a diet that the patient is able to follow financially.
5. Knowledge of social agencies in the community, or of social service in the hospital, so that if aid is necessary the dietitian can help in securing it.
6. Knowledge of racial customs and traditions, so that the dietitian can supply a diet as nearly as possible compatible with religious or national habits.
7. Knowledge of cooking and menu making so that the dietitian can demonstrate methods of food preparation.
8. Knowledge of educational technique so that the dietitian can get over to her client the new diet and train him in new habits that will cure the disease, control it, or prevent its recurrence.

Various educational institutions of Boston and the vicinity, realizing the new application of dietetics in the treatment of disease, asked that the Food Clinic admit students for field work. Thus the Food Clinic

becomes a centre for teaching and demonstrating the science of applied dietetics to medical students, public health nurses, social workers, teachers-in-training, students in home economics and student dietitians.

It is taken for granted that the student dietitians come from schools of recognized standing and are equipped with a simple but definite knowledge of the principles of dietetics. Let us see what other courses must have practical application in the out-patient practice of dietetics.

The dietitian's preliminary study of her patient, when she procures from him the data for a nutritional history and social record, requires the application of the principles of sociology and psychology. Poverty is no longer an academic discussion of the class-room. The thought is uppermost in the dietitians' mind, "Has this patient the means to procure the food required by the diet I am prescribing for him? If not, how can I adapt it to meet his financial situation, or how can he be helped to obtain the food which may mean to him the difference between successful and happy living, and discouragement?"

Has the graduate dietitian the principles of these sciences tucked away in some pigeon hole of the brain, whence she can call them forth to be applied to such actual situations? If not, she cannot be ready with a sympathetic understanding to deal effectively with her patient.

Physiology becomes a live study when the diseased part to be treated, be it a gland, a bone, the blood, or some special organ, belongs to the human being who sits face to face with the dietition. It means a call to try to see, as if by use of the power of the X-ray, if the diet for the special need can create conditions to make the diseased part whole.

Because the dietitian recognizes the close relation of diet to organic disfunction, she feels the necessity of a deeper knowledge of the body parts, their composition, function and disfunction. Chemistry, like physiology, is no longer just the fascinating study of equations, but becomes the tense, real problem of life, indicating the possibility of renewed health through intelligent treatment, or the tragedy of increased pain and lurking death.

Laboratory findings are equally important in visualizing the patient's condition, pointing out the direction which the food treatment should take.

Thoughts of courses in education will call forth memories of the well-ordered class-room. But the problem before the clinic is to present, then and there, the food values and principles of diet to the unlettered patient, so simply that he clearly understands the lesson, and will follow it. The principles of education and the technique of teaching conned

in student days must be summoned to aid in making clinic teaching a success.

The requirements for the out-patient dietitian should include, then, with other things, courses in the fields of education, social ethics, psychology, physiology, chemistry and bacteriology.

It is trite but true that the dietitian must have also the subtle but real attribute, a convincing personality, as well as understanding, to win the confidence and the good faith of her patients.

In the out-patient food clinic, the dietitian works with, rather than for human beings. She cannot administer for them in the home, but she must stir them to effective action there in their own behalf. Her work is not in the diet kitchen, with up-to-date equipment at hand; she must lead human beings so to understand their own problems that they will find the way to carry out remedial measures despite limitations and handicaps.

The diets are standardized to meet the body needs, but they are also carefully adapted by the understanding of the dietitian to meet every different type of mentality in the various nationalities, the rebellious-minded, the gentle, the acquiescent type that agrees to every thing that is said but indicates little will-power, the child with his vagaries, and the adult with much or little faith. The problems they present are manifold. Then, there are those who cheer the dietitian by a loyalty that leads to successful treatment.

Experience with student workers in the course of their field work in the Food Clinic indicated the desirability of planning definite courses, not only for the teaching of out-patient dietotherapy, but also its applications, with the thought in mind of developing the future out-patient dietitian. The students in Home Economics and the student dietitians coming to the Food Clinic for courses of study are from Simmons College, Framingham Normal School, and the Peter Bent Brigham Hospital. (It is not the intention of this paper to speak of the courses given to doctors, nurses and social workers.) While there are definite principles that are discussed with all students, the length of the course, the various phases emphasized, and the methods of presentation are planned according to the group to which the course is given. All students are given lectures in dietotherapy, and provision is made for all to have periods of clinic observation. All students are responsible for assignments and the undergraduates are given credit for their work. Where the length of the course permits, the other facilities of the Dispensary are used and special lec-

tures and observation periods are arranged for in the Social Service Department. The student dietitian is given the opportunity to observe all the laboratory tests requisite to dietotherapy.

The Boston Dispensary is fortunate in having a Department of Health Education, in which students may observe methods of teaching the simple principles of health. This department, associated with the Food Clinic, has compiled a bibliography of nutrition and allied subjects for the guidance of students. The most important books, pamphlets and materials from various organizations are on file for reference, and in order that the students may also have collateral reading, the leading medical, health and dietetic journals, as well as educational and social magazines are available in the Food Clinic.

Perhaps the most concrete method of demonstrating the actual working out of the courses is to present them in the form in which they are given to each student, as her schedule. This will clearly indicate the difference between what is given to the undergraduate student, who comes once weekly, and what is covered in the graduate course to student dietitians who do intensive work for a month. The former must needs deal in more general principles, as their chosen field is not yet defined; while the latter are rounding out training for the selected vocation of hospital dietitian, receiving in the Food Clinic intensive instruction in prescribing for the needs of out-patients. The course for the graduate student allows her two weeks of clinic work in giving diets to patients, in which she applies the special practices taught in the course.

COURSES AT FOOD CLINIC OF THE BOSTON DISPENSARY

Four Weeks Student Dietitian Course—Peter Bent Brigham Hospital, 1927–28

General Directions

Hours for students—9:00 a.m. to 5:00 p.m., unless otherwise indicated. Saturday afternoon and Sunday free.

Students are expected to provide their own smock or uniform.

Students may have their luncheon at the Food Clinic at a nominal charge of 20 cents per day.

Note Book

A diary note book should be kept by each student in which she shall include observations made in morning clinics, points or information gathered in afternoon work, or any other factors which the student feels to be of interest. The diary is expected to show what the student has received while at the Food Clinic.

Reading

The following books should be read during the course at the Dispensary:

1. The Mayo Foundation Lectures.
2. Talks to Nurses on Dietotherapy and Dietetics—Wheeler.
3. Basal Metabolism—DuBois.
4. Nutrition Work with Children—Lydia Roberts.

The student shall hand in, at the end of the stay, a summary of these books together with a review of books read at the P. B. B. Hospital before coming to the Clinic.

FIRST WEEK

Morning

1. The student will first be given some idea of The Boston Dispensary as a whole and then study the aims and ideals of the Food Clinic.

See books, Food Clinic policy book and O. P. Dispensaries pamphlets and reports.

2. *Observation:* The student shall observe every morning during first week, sitting with dietitian and observing her conference with each patient.

The following points in the record must be considered and observed in the interview.

1. Facts from Social Record: See Face Sheet
   - Environment
   - Nationality
   - Financial Situation
2. Medical Record:
   - History—Patient and Family
   - Physical Examination
   - Diagnosis.
3. Food Record:
   - Approach of Dietitian with patient
   - Social Data not on face sheet including nutrition history and food intake.
   - Method of calculating diet.
   - Principles of Dietetic Treatment.
   - Methods of prescribing and teaching patients.
   - Follow-up.

Afternoon

1. *Study of Records:* Calculate diets from them based on diagnosis and treatment.

The following cases shall be studied.

Monday. Obesity (Adult). See "Obesity Studies," Strouse.

Tuesday. Obesity (Child). See "Food for Body," Stern & Reynes Food Clinic publication.

Wednesday. Underweight (Adult and Child). See "Food, Health and Growth," Holt.

Thursday. Hypertension. See "Blood Pressure," Barker and Cole.

Friday. Constipation (Bland and Roughage). See Reprint, Davidson.

Points to be Considered

Nationality:

Dietary laws
Typical foods
Customs

Financial situation:

Number earning, total income for home.
Possibility of sufficient food

Environment:

Kind of family
Occupation
District in which they live
Connection with any agency
Possibility of coöperation

Medical:

History
Physical Examination
What findings influence food treatment? Ht., Age, Present Wt., Av. Wt., blood pressure, heart, blood, urine, teeth, eyes, bowels.
Diagnosis:

SECOND WEEK

Morning

The mornings will be given to observation in the Food Clinic, unless otherwise stated.

Monday—Tuesday—Wednesday. 9:00 to 10:30 will be spent at the admitting desk where social worker interviews each patient on his initial visit. This forms a relationship between social side and the food aspect, for it is a study of the patient as a whole and on this is based much of the procedure carried out by the dietitian.

Tuesday Morning. The preparation of Diabetic Exhibit.

Wednesday. 10:30 a.m. Observation of technician doing urinalyses.

Observation of Doctor in Diabetic Clinic, prescribing diet.

Discussion of insulin and its administration.

Friday a.m. Observation in Children's Clinic of a complete physical examination of a child, by a physician, noting various factors brought out in medical records.

Afternoon

The study of records as directed for the first work, based on diagnosis and treatment.

Monday. Diabetes, See "Food for the Diabetic," Huddleson Diabetic Pamphlets.

Tuesday. Nephritis, See Christian, Hubbard, O'Hare.

Wednesday. Epilepsy, See articles by Peterman, Talbot, and Luther.

Thursday. Ulcers.

Friday. Complication of diseases.

Third Week

Morning

The student will take patients, applying the psychology and principles of dietetics as observed the first two weeks.

Each student will see one new patient a day and possibly check up several old ones.

Method:

1. The student will read medical records and face sheet.
2. Take nutritional history.
3. Calculate diet.
4. Arrange diet in menus and in household measures for patient.

Take intake of old patient and work out in grams to see what patient is eating. Ask other questions pertinent to patient's condition. Make recommendations.

Tuesday. Preparation of Diabetic Exhibit for Wednesday.

Afternoon

Two afternoons will be spent in the Laboratory watching tests which relate to Dietotherapy as students must relate normal or abnormal findings in disease to food treatment.

It is necessary to know what the normal is in order to interpret the abnormal findings.

The students should see the following tests done:

Wassermann
Blood Count
Haemoglobin
N. P. N.
B. U. N.
Phenolphthalein
Urine and sediment

The remainder of the afternoons may be spent looking over and reading the various dietetic, medical and public health magazines. It is suggested that students familiarize themselves with available periodicals and as to kinds of material which they contain. This might later act as a guide as to which magazines to subscribe to for various types of positions.

Fourth Week

Morning

The student will take patients as in the third week, applying the principles of dietetics as observed the first two weeks.

See outline of third week for Method of Procedure.

Afternoon

Monday. Conference of student, with Director of Social Service Department or one of her case workers. See "Relation of Social Service Department to Food Clinic."

Tuesday. Attend Psychiatric Conference at Judge Baker Foundation.

Wednesday. Conference with Miss Stern, Director of the Food Clinic.

Thursday. Conference with Miss Pfaffman on Health Education. Assignment by Miss Pfaffman.

Friday. Health Education work in the Hospital.

Free time may be spent finishing up readings, diets or other things which students want to do at the Dispensary.

DIETOTHERAPY AND HEALTH, FRAMINGHAM NORMAL SCHOOL

LECTURE	DISCUSSION	SUGGESTED READINGS	ASSIGNMENTS
I	Special significance of food Income House Condition Nationality Mentality Occupation The psychological approach to the patient	Nesbitt: Household Management. Richmond: What is Social Case Work.	Plan an outline of questions for a school child's Health Record, which when answered would give a picture of both his social and physical background
II	Physical examination. Its significance in health and disease	A. M. A.: A Manual of suggestions for the conduct of public health examinations. Dublin: Physical defects as revealed by periodic health examination. A. M. A., October, 1925. Champion: School Health examination, Am. Jour. Public Health, December, 1925. Seham: The Tired Child.	
III	The Normal Diet: ("Food for the Body") interpreted in racial foods.	Gillett: Information on Racial Dietary Customs. Wood: Foods for the Foreign-born. Stern and Spitz: Food for the Worker. Reprints from State Department of Health.	Choosing one nationality; study how their food customs and preparation of their daily dishes have been influenced by history geography and economics. List bibliography
IV	Obesity	Rose: Eating Your Way to Health. Strouse: Studies on Obesity. Dubois: Basal Metabolism. Metropolitan Life Insurance Company pamphlet N. E. Dairy and Food Council pamphlet Mayo Foundation Lectures. Davenport: Body Build.	Calculate and give day's menu for an obesity patient whose diet must be adjusted to his likes and dislikes, e.g., A patient does not like meat or another does not like milk or cheese

DIETOTHERAPY AND HEALTH—*Continued*

LECTURE	DISCUSSION	SUGGESTED READINGS	ASSIGNMENTS
V	Mental life of the child (Dr. Bronner) Food idiosyncracies		Readings as assigned
VI	The underweight	Department of Public Health—Material. Proudfit: Dietetics for Nurses. Bancroft: Posture of the School Child. Wheeler: Dietetics and dietotherapy. N. E. Dairy and Food Council—Material. Emerson: Nutrition and growth. Roberts: Nutrition Work with Children. See Health Bibliography.	Plan an underweight dietary, giving all conditions on which it is based. Plan day's regime based on accompanying social and nutritional history
VII	Constipation Spastic Atonic	Davidson: Reprints on Constipation. Alvarez: Intestinal Autointoxication. Physiological Review, Vol. 4, 1924. J. A. M. A.: Vol. 83, August, 1924. The Rate of of Process of Food Residue through the Bowel.	Plan two dietaries from one calculation of a diet, showing difference in preparation and consistency of food
VIII	Hypertension and Nephritis	Barker and Cole: Blood Pressure. Chap. IV. Pamphlet—O'Hare (P. B. B. H.) Carter-Howe-Mason: Clinical Dietetics, pp. 455–473. Peters: Relation of Albuminuria to Protein Requirement in Nephritis. Arch. Int. Med., February, 1926.	Plan a high caloric diet with a minimum amount of protein

DIETOTHERAPY AND HEALTH—*Continued*

LECTURE	DISCUSSION	SUGGESTED READINGS	ASSIGNMENTS
IX	Diabetes	Joslin: Diabetic Manual. Huddleson: Food for the Diabetic. Harrop: Management of Diabetes. Pamphlets on Insulin and Diabetes: Carnrick, Stearns, Lilly.	(1) Take Dr. Joslin's "Care of the Feet." Simplify and rewrite for use of dispensary patients or rewrite directions for collecting a 24-hour specimen of urine. Or plan material to be used in teaching the diabetics
X	Anemia Pernicious Secondary	J. A. M. A., Vol. 87, 1926. Article by Murphy and Minot. Whipple and Robchait-Robbins: Blood Regeneration in Severe Anemia. Am. Jour. Physiology, Vol. 72, 1925. Mitchell and Selmidt: Relation of Iron from various sources to nutritious anemia. Jour. Bio. Chem., Vol. 70, 1926. Weiss and Isaacs: Manual of Clinical and Laboratory Technique	Plan six recipes for the use of liver putting them in such a form as may be used by Dispensary patients
XI	Epilepsy	Peterman: Ketogenic Diet in Epilepsy. J. A. M. A., June 27, 1925 Am. Jour. Diseases Children, Vol. 28, 1924. Boston Medical and Surgical Jour., January 20, 1927.	Calculate food order for various ratios; then calculate day's diet and plan menu for an epileptic
XII	Pregnancy and rickets	Day: Reprint on Pregnancy. Children's Bureau Publication. J. A. M. A. Articles.	Calculate the mineral content of a diet for a pregnant woman being sure to cover her requirements

DIETOTHERAPY AND HEALTH—*Concluded*

LECTURE	DISCUSSION	SUGGESTED READINGS	ASSIGNMENTS
XIII	Teaching methods	Exhibits. Lists of Posters. Lists of Health Films. Nutritional materials from organizations. State and Municipal Bulletins. Charts, Magazines. Pamphlets and Recipes.	Plan an exhibit giving detailed directions and cost
XIV. and XV	*Health Education* What it is and what it is trying to do. Development Content Child health education In the schools By the Child Health Organization In the Medical institution Teaching methods and aids Sources of material Health education of the adult and the pre-school child	Winslow: Evolution and Significance of Public Health Movement. Moore: Public Health in U. S. Chap. I and XII. Health Education: Report of Joint Committee on Health Problems in Education. First 25 pp. U. S. Bureau Education: Health Education Series No. 19 "Is your Child ready for School?" School Health Studies, No. 4 Who's Who in Health Land. Malden Studies in School Health Education.	

Inasmuch as special clinics for the guidance of dietotherapy have only been recently developed, the demand for dietitians has been too limited to organize courses in colleges for this specialized field. The Food Clinic of the Boston Dispensary is now an established part of the Medical Department, and the courses in applied dietetics are but a mutual study, by the students and the Clinic staff,—the first steps that may lead to the establishment, some day, of a special course in the training school, the out-patient clinic to be the center for field work.

THE DIABETIC DIET

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The optimal diet for the average diabetic patient today with or without the help of insulin contains carbohydrate 100 grams, protein 75 grams, fat 125 grams. Many children and a few adults have not yet reached this quantity of carbohydrate, but I recall none who are now taking less than 50 grams. Furthermore one can observe a steady increase in this amount, formerly considered liberal, with the duration of the disease, though as yet comparatively few patients are seen who can tolerate over 150 grams. The above mentioned protein is about that of a normal individual. In general it varies between the extremes of 4 or 5 grams for an infant, 2 or 3 grams for a child, 1 or 1.5 gram for an adult and as low as 0.6 gram per kilogram body weight for the old. The fat in the diet still regulates the weight of the patient, but practically it is not uncommon to be able to replace 10 grams of fat with 10 grams of carbohydrate, despite its lower caloric value, and yet see the weight maintained.

The present diabetic diet no longer demands a Spartan for a patient or presents a struggle for the dietitian. The elements of heroism and combat have vanished and the dietitians and nurses themselves consume the same types and not very far from the same quantities of foods which they provide for their patients, not infrequently because they too are diabetics.

Diet, however, remains the fundamental factor in the treatment of diabetes. Diabetes is the one chronic disease in which the penalty of disregarding the diet may be followed by death, immediately, either in coma or remotely by arteriosclerosis in one of its various manifestations.

The sequence of coma upon overeating, whether of food or of one's own body, due to increased metabolism, is becoming common knowledge. Almost any hospital trained diabetic appreciates the connection and the sight of a coma case or the simple story of how a fellow patient once went into coma is apt to create a vivid enough impression to produce a lasting memory. Of course it must be explained over and over that the fever of an infection, the increased metabolism of hyperthyroidism, an extra-

ordinary exertion and, fully as impotant, the omission of insulin, all lead to a diabetic's overeating himself and thus bringing him into the coma zone, which is an area in which it is dangerous to park.

Arteriosclerosis is the other termination of an improper diabetic diet. Thus far all our diabetics of five years' duration have shown it at autopsy and as for those of ten years' duration it has been disclosed in essentially all cases by X-ray. Arteriosclerosis is so frequent in diabetes that it has grown to be considered as the acknowledged outcome of the diabetic if he survives a decade. Like coma 5 years ago it is accepted regretfully as the standard end of the disease to which the diabetic is foreordained and predestinated. I object. I do not believe the diabetic doomed to arteriosclerosis. Just as he has been rescued from coma, so can he be saved from premature arteriosclerosis, and just as the dietitian achieved the former task, we expect and indeed demand that the latter be attained through the instrumentality of the diet and the dietitian. Insulin it is true has been a great helpmate, but largely because insulin has taught us the value of the diet.

What is this arteriosclerosis? It is a condition characterized by a thickening of the wall of the artery, often accompanied by a deposit of cholesterol in its inner layer, with subsequent addition of lime which accounts for the hardening. Virchow and Aschoff attribute these deposits of cholesterol in part to the presence of an excess of cholesterol in the blood. This is known to have been the rule with diabetics of the old regime. Not only did they have an excess of cholesterol in the blood, and an excess in their arteries, but they exhibited its abundance in the body by their tendency to have gall stones and the peculiar yellow patches of the skin known as xanthoma diabeticorum.

The modern diet and the modern dietitian can change this state of plethora of cholesterol and it is a great satisfaction to me to report that Miss Hunt at the Deaconess Hospital has found that my present day diabetics do not show an excess of cholesterol in the blood save in 40 per cent of our cases. The exceptions are interesting and they belong in the main to two groups, the fat, adolescent girls, and the patients with acidosis. In the blood of one of the former the fat diminished with achieved maturity and loss of weight. There is one girl who still remains a puzzle because she is a diabetic of five years' duration, now nineteen years of age, who has not yet matured, who is of normal height, below normal in weight and yet has a high concentration of cholesterol in her blood.

The glycogen reserve in the liver, and for that matter in the muscles

too, determines the severity of the diabetes. Even before insulin we were aware that if we gave a diabetic a gram or two of carbohydrate in the early morning and he assimilated it, this could be followed an hour later by a breakfast which would be utilized better than as if he had had nothing earlier to eat. Now we understand that this was due to the stimulation of insulin production and consequent storage of glycogen and possibly to its combustion. Insulin has taught us this. Toward evening under the influence of insulin there is glycogen in the liver and muscles of even the severe diabetic, the urine is sugar free and the metabolism is running smoothly. During the night the effect of insulin wears off and it is a difficult matter to keep the patient sugar free. But if one gives only a unit or two of insulin toward midnight or is enterprising enough to inject it in the early morning hours, glycogen is again stored and the diabetic becomes mild and the glycosuria tractable. The severe diabetic thus goes to bed in reality as a mild diabetic and sugar free, but after many hours of sleep he is no longer protected by insulin and wakes up severe; the mild diabetic on the other hand may retire with sugar in the urine and simulate severity, but the night's fast rids him of glycosuria and he wakes up mild, because he has been able to assimilate all the carbohydrate which comes from his protein and fat and thus protect his body glycogen. This the severe diabetic could not do.

The life of the diabetic depends upon and is bound up in glycogen, and this is the material which insulin has the ability to put in storage. From where does insulin get the material out of which to manufacture and store glycogen? Chiefly from the carbohydrate of the food, in part from protein and the most conservative will allow a certain amount can be derived from the glyceryl radicle of fat.

What is the quantity of sugar which can be formed from protein and fat? Only yesterday that was a physiological law based upon the dextrose nitrogen ratio and the Woodyatt formula of 58 per cent carbohydrate from protein and 10 per cent carbohydrate from fat, but today theories of metabolism are in a state of flux and though we may still cling to the old ideas for practical reasons, it really does seem as if fat was a far greater glycogen former than hitherto acknowledged in the United States. In support of this view it is pointed out that the food of a muscle is sugar and yet after prolonged muscular exercise all the theoretical glycogen in the body has been used up and, notwithstanding, muscular action continues. This implies that new supplies of carbohydrate have become available. These cannot be accounted for by the breakdown of the protein molecule. How else can they have been produced

if not from fat? Another argument. Transfuse a glycogen exhausted liver with blood, and sugar is found in the blood recovered, the source of which cannot be explained by any remnants of glycogen in the liver or by protein katabolism and so again by exclusion one looks for the origin in fat. A third argument. The dog without a pancreas has a respiratory quotient of about 0.70 showing that he is living on fat, but if his liver is removed he then shows a respiratory quotient approaching unity, 1.00, which suggests carbohydrate combustion. How can a depancreatized dog secure the carbohydrate save from fat katabolism? One must admit the possibility, therefore, that fat is converted into carbohydrate in man just as it is in plants and one must also consider that insulin may not only lead to the storage of glycogen and favor its combustion, but also may regulate the metabolism of fat as well, and perhaps prevent its rapid change into sugar possibly through the stage of the fatty acids and the ketone bodies.

These new supports for old ideas are stimulating and interesting. They suggest new tricks in the diet which dietitians can perform. Already we are aware that exposure to a very low carbohydrate, high fat diet promotes hyperglycemia and that it requires a considerable period to overcome its deleterious effect. Perhaps if we assume that our diabetics are not severe at the start and treat them accordingly they will actually prove to be mild and not so different after all from the rest of us. In fact for years I have gone on the principle that a diabetic is mild or severe largely as the doctor and the diet make him. My diabetics I regard as nearly all mild. Of course insulin helps to make them so, because it obviates the necessity of a high fat diet with the consequent exposure to coma and arteriosclerosis, but chiefly because it prolongs the life of a diabetic and thus allows the islands of Langerhans in the pancreas to regenerate.

PLACE OF THE BANANA IN THE DIET OF CHILDREN

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Any very general use of the banana in the dietary of infants and children has been almost precluded by the fact that textbooks of medicine and nursing have for a long time relegated this food to the list of undesirable and prohibited articles of diet. The basis for this, if any exists, is not clear. In part, however, the observation of gastro-intestinal symptoms, of constipation, pain and vomiting, attendant on the ingestion of the very unripe fruit can be said to account for much of the prejudice. In the past few years the fact has been repeatedly pointed out, however, that the ripe and unripe forms of banana constitute two totally different foods; that the green and yellow skins cover a starch difficult of assimilation by the infant which becomes converted on ripening to a readily absorbed sugar found under the brown skin.

With the observation of Hass (1) of its special virtue in Coeliac disease, the unpopularity of the banana waned; though several years before this Pease and Rose (2) had pointed out its value as a more general article of diet. In part then conclude as follows:

> The banana is a useful fruit that can with profit enter liberally into the child's dietary provided it is fully ripe or well cooked. If eaten baked in the yellow stage of ripeness or if eaten raw when fully ripe, the banana makes a delightful and highly nutritious article of food. Its composition does not warrant the use of the banana as the main component of the child's dietary, but it can compete well with other fruits and is decidedly to be preferred to candies. The nutritional value is relatively high, approximately one calorie per gram of pulp; and its carbohydrates, when it is fully ripe or cooked, are not less assimilable than those of cereals and potatoes. In the raw food the digestibility is directly proportional to the ripeness of the fruit. There is no positive evidence that the banana influenced bowel movements.

As a "complete" food for infants it is not to be thought of, if for no other reason than its almost negligible protein content; and perhaps the chief argument in its favor is that it constitutes a readily assimilable, palatable carbohydrate which is incidentally rich in vitamines A and C.

The observations upon which this report is based were made on patients in the Infant's Hospital and the Children's Hospital in Boston who were selected with the end in view that the following points relating to the use of banana be covered:

(1) The ability of small infants under six months to tolerate it.
(2) Has it any special virtue in feeding infants or children?
(3) Is its antiscorbutic content sufficient to be of therapeutic value?
(4) Confirmation of its value in the treatment of Coeliac disease was sought.

BANANA IN THE FEEDING OF SMALL INFANTS

In the artificial feeding of infants, the present day attitude has been an attempt at simplification. Most babies can be successfully fed on mixtures of cows' milk, added carbohydrate and water which fulfill these requirements—not rigidly but approximately. (1) The mixture should furnish adequate calories; a requirement varying a little with every baby and estimated by observing his response to an average number; (2) Approximately $\frac{2}{3}$ of the calories should be furnished by milk and $\frac{1}{3}$ by some added carbohydrate (this conception was popularized by Powers who pointed out that most successful milk mixtures, when expressed in terms of percentage calories, resolved themselves into modifications in which approximately 60 per cent of the calories were supplied by milk and 40 per cent by added carbohydrate); (3) A fluid need must be met. This happens to be fulfilled by the milk modification when that is not more concentrated than 20 calories to the ounce; most conventional mixtures used with normal babies have a concentration between 16 and 20 calories to the ounce. As to the added carbohydrate the wide difference in practice in various clinics can mean only that there is relatively little advantage in one sugar over another; the combination of a starch with a sugar, however, does result in an impetus to the weight curve not explained on the basis of calories.

The composition of the banana mixtures used in feeding infants was arrived at as follows: The desired number of calories was estimated, this number was then satisfied by furnishing 60 per cent of the calories in milk and 40 per cent in banana; e.g.,

Whole milk	360 cc.	240 calories
Banana	200 grams	160 calories
		400 calories

1 cc. equals approximately 0.7 calories
1 oz. equals approximately 21 calories

The relatively high water content of the fruit usually makes the addition of water unnecessary. The resultant mixture has a caloric value of approximately 70 calories to 100 cc., a concentration about equivalent to breast milk; if fed to normal babies in amounts equivalent to 100 calories per kilo the banana-milk furnishes about 3.5 grams protein per kilo, an amount which is probably optimum for the normal growth of infants when breast milk is not used. A difficulty arises in the estimation of amounts of banana which depends on their loss of water. Used at the stage when they are brown to black but have still retained their shape, it is sufficiently accurate for practical purposes to consider that 100 grams equals 80 calories and that the pulp of a good sized banana is roughly 100 grams. It is, however, a simple thing to weigh the pulp accurately as was done with the feedings of the babies in question. If the entire day's feedings are made at one time the mixture must, of course, be kept on the ice as otherwise fermentation is apt to result. When refrigeration is not possible, however, each feeding can be made up separately. We saw nothing to indicate that the ingestion of the fibre was at all harmful but with very small babies for whom the nipple hole is rather small the fruit should be pushed through a strainer before being beaten into the milk.

Feeding this mixture to infants as young as six weeks, all hospitalized, we were unable to observe evidences of indigestion or intolerance. There was a slight tendency to constipation which, however, is in general true of whole sweet milk mixtures whose concentration is as high as 70 calories per 100 cc. We felt that as an added carbohydrate it could be substituted freely for dextrin, maltose, glucose or cane sugar; we were not, however, able to observe any special advantage, as reflected in the weight curve, over the other carbohydrates. Thursfield (3) recently wrote very enthusiastically on the excellent results obtained in feeding a small group of athreptic infants on banana and milk modifications. The cases cited were a number whose weight curve had been obstinately flat until the substitution of the banana for the previously used carbohydrate. In our cases the curve continued along an even line and our chief result was that bananas are well tolerated by young infants and that they have a definite antiscorbutic value. With the high cost of food a factor, bananas can be substituted advantageously for other more expensive carbohydrates and antiscorbutics.

There is, however, a special large group of older children (fifteen months to two years) chronically ill, to whose diets banana makes a valuable addition. When the combination of infection and a previously

bad feeding history makes convalescence unduly prolonged, and progress in making a gain in weight is difficult because of the capricious appetite, 300 to 400 additional calories daily will be taken with relish in the form of banana. In this group, about twenty children were selected; these patients had a variety of chronic illnesses—tuberculosis, chronic non-specific lung infections, acrodynia—all cases whose hospital stay was greatly protracted. Our plan in "forced feeding" is a combination of concentration of the food and an increase in the number of meals. The banana was used as dessert, or was whipped into the milk given as intermediate nourishment. Only one child refused banana no matter how served; in general it was a preferred article of diet.

SCURVY

Most texts list the banana as being relatively low in antiscorbutic content. In his monograph on Scurvy, Hess cites his failure to influence clinically several patients ill with the disease by giving them banana but urges that the matter be studied further.

The first patient with scurvy treated by us with banana exclusively (the milk used was autoclaved for twenty minutes at 212°F.) was reported at some length in a previous publication (4). Subsequently, five additional cases were treated in the same manner and with identical results. Quantitatively, the antiscorbutic content of the banana is less than that of orange juice but the amounts used as added carbohydrate in the usual milk modifications are more than adequate to cover the vitamine C requirement. In the original case 200 grams of banana were given daily (the equivalent of the pulp of about two large bananas). In the other cases corresponding amounts were given depending on the ages and weights of these patients; i.e., 40 per cent of their calories were supplied with banana. With these amounts the time required for the loss of tenderness, disappearance of hemorrhagic gums and calcification of subperiosteal hemorrhages seemed to us to compare favorably with that under orange juice and tomato juice therapy.

COELIAC DISEASE

The use of the banana in the treatment of coeliac disease has been reported at length by Haas and others. Our plan of treatment of this disease consists of an initial period of low caloric feeding with a diet very high in protein, low in fat and with only as much carbohydrate as will occur in the skimmed acidified milk used. The patient is kept on

this until anorexia (a troublesome feature) is less, distention is diminished and the stools are less abnormal and offensive. During this time the weight curve is best disregarded; loss in weight is to be anticipated. When the indications noted above have been met additions may be made cautiously to the diet. It is at this stage in treatment that banana may be introduced with advantage; one at first, increasing the number gradually until finally five or six are given. The ripe fruit may be eaten in the natural state; may be whipped into milk, or, for variety and palatability may be baked. Coeliac disease is sufficiently rare so that the number of cases in the experience of any one man will be small. We have used banana in five patients with the disease without noting other than beneficial results.

CONCLUSIONS

1. Ripe banana can be fed with safety to very young infants.
2. It constitutes a most valuable addition to the diet of any child, but particularly of that group of children whose ability to gain in weight is the most important factor influencing their recovery from protracted illness but whose appetite must be tempted by more than the usual staples.
3. The banana is of therapeutic value in scurvy and coeliac disease.

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THE RÔLE OF NUTRITION IN HEALTH EDUCATION

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What should be the relation between nutrition and health education in the health program of the public schools? What relation should the teacher of nutrition bear to this program? These questions cannot be answered until there is a definition of terms and when such a definition of terms is agreed upon, the answer is rather obvious.

Apparently, the schools of the future are going to teach health just as they are now teaching the three R's beginning at the time the child enters school. In a recently prepared outline of health education for all grades for the city of Cleveland, the Superintendent of Schools, Mr. R. G. Jones, says:

> We want to train our children for vigorous and abundant health, and we cannot depend upon either instinct or environment to lead them towards proper health practices. These must come from intelligent training and the schools of the future will share with the home in the development of health habits and attitudes as well as knowledge. . . . . In the classroom, standards for healthful living will be developed.

Just as health must be taught with certain objectives in view, so also *nutrition* must bear a direct relation to the future health and the present health practices of the individual.

How is health education being developed? It is a program of training which begins with the kindergarten. It is developed by the classroom teacher, not by a body of health specialists or special teachers. The school and the home coöperate in this task. Every specialist in the school system contributes to the program which is based upon sound psychology and a knowledge of the true interests and incentives of children at different age levels. Both teachers and pupils consider health as a means of enriching life, not as an end in itself. The child comes to enjoy health as a school subject and to associate it with conduct rather than to think of it merely as a subject of instruction.

Nutrition is one of the most important elements of the whole program. Food habits are among the first and most important practices to be

developed. Before such habits can be established, the teachers themselves must know the fundamentals of sound nutrition and must practice them in their daily life.

Nutrition is no longer the preparation of food in a cooking class with a superficial and unrelated knowledge of proteins, fats and carbohydrates. A body of facts in themselves do not constitute education, and unless the students know how to plan, prepare and eat a meal that fulfills body requirements and helps maintain and achieve good health, the object of the lesson is lost. In order to make this a part of daily living, each teacher must contribute her part to the general program. The geography class will learn where the food products come from, the history class will read of the food habits and customs of other races, and art students will make posters and models to illustrate good food usage. If there is a printing class, they can make a cook book for boys and girls to use. The hygiene teacher will make them understand their body and the part which food plays in growth and health.

Sound educational principles are followed. Emphasis is placed upon what to do, not upon what not to do. Responsibility for developing the activities are turned over to the pupils as far as practicable. Children are commended for their successes. Successes rather than failures are emphasized. The need for methods of measuring achievement is recognized and met.

The *school health program* is perhaps the best term to express the entire group of health activities. Let us see what it includes. The logical classification from the standpoint of what is done is as follows:

I. Health protection
   a. Sanitation of the school plant
   b. Examination
      1. Physical
      2. Psychological
   c. Communicable disease control
II. Correction of defects
   a. Follow-up work by the school nurse who visits the home to see that steps are taken for the correction of defects
   b. Special classes (open air classes, sight conservation classes, etc.)
   c. Public clinics for the correction of physical defects of children whose parents cannot meet the expense
III. Health promotion
   a. Hygienic arrangement of the daily study program
   b. Physical education (Physical training program)
   c. Health instruction and motivation (including training in nutrition and health habits)

From the standpoint of administration and the division of personnel, we think of:

1. The medical and nursing service
2. The dental service
3. Physical education
4. Psychological and psychiatric service
5. Custodian service and school sanitation
6. Lunch room service
7. Health education

The department of nutrition of the public school system controls the management of the lunchrooms and sees that proper food is served and proper eating habits developed. In the higher grades when most subjects are departmentalized, the pupils will receive instruction in nutrition from a specialist, at the same time that they are receiving instruction from other people. This means that some ideas will be met in different relationships in hygiene, in physiology, in home economics, and in natural science. It is important that we should all teach the truth and that we should have respect for professional standards, but it is fundamentally unsound that we should divide up the child, who really is an individual, and give his stomach to one person, his arms and legs to another, his heart and lungs to another.

The most desirable thing that can happen in the junior and senior high school is that a health program shall be organized under the direction of a committee composed of the principal, the teacher of hygiene, the teachers of home economics, and the teachers of physical education and the doctors and nurses. In addition, it will frequently be desirable to place the special responsibility for the health program upon some one of these persons who may serve as *health counsellor* for the school.

So far as the subject of nutrition is concerned, the present wide-spread interest in health education should mean:

1. The demand for more extensive instruction in nutrition in teacher-training institutions and for teachers in service.

2. The increased usefulness of the capable nutrition specialist in aiding the development of a nutrition program in the lower grades of the public school system.

3. The increased emphasis upon a positive health-promoting service of nutrition among all people, both children and adults.

4. An increased service for the teacher of nutrition in junior and senior

high schools and a closer correlation of her work with the work of other departments.

5. An increased opportunity for nutrition workers in medical institutions and social agencies to develop the best type of modern health-habit training in the field of nutrition for the agencies which they represent and to so organize that training that it will both stimulate and supplement the health education program of the public schools.

BOSTON'S SURVEYS—1925 AND 1926

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Haven Emerson, not so long ago, in an address on the "appraisal form" of city health said that he thought the Domesday Book of early English history was the first real Survey. Most people, nevertheless, look back to the Pittsburgh Survey of 1907 as the outstanding contribution to this field. More recently, in 1921, the lengthy, detailed and expert report of Cleveland has set the seal as to what a good survey can be, both in the analysis of existing local conditions, comparison with other cities, and recommendations for improvement.

During the past year Boston, too, has joined the list of "surveyed" cities with three surveys to its credit—for to be surveyed means a willingness to learn and a desire to improve. For this purpose, the Boston Tuberculosis Association, a private society, had Professor Horwood of Massachusetts Institute of Technology, during the summer of 1925, make a study of Tuberculosis in Boston. This was followed by a request from the Mayor to Dr. Haven P. Emerson of New York, for a report on Tuberculosis, which was printed in October, 1926. That same date brought forth a study of the policy and work of the Community Health Association and its relation to Boston's health program by Professor Winslow of Yale and his associates.

These three reports are of great interest to the community, but of particular interest to dietitians because diet and instruction in diet must play a large part in the treatment of pulmonary tuberculosis; and a nutrition program looms large in any nursing organization, which offers bedside care and maternity service.

In his discussion of the tuberculosis problem in Boston, Professor Horwood outlines the clinical facilities for the diagnosis and treatment of this disease and, therefore, takes into consideration every hospital and organization dealing with this situation. It is thus that he shows that the food clinic of the Boston Dispensary, the North End Diet Kitchen of the Massachusetts General Hospital Out-Patient Department and the Nutrition Clinics of the Children's Hospital, play their part in help to the pre-tuberculous child. The Boston Tuberculosis Association, itself,

has no nutrition department, but offers a very active health education program, while the Prendergast Preventorium and the summer camp, which it operates, pay especial attention to gain in weight and adequate diet.

The public school system and the parochial schools have their contribution to health, education and nutrition analysed in this survey. In the former, the school nurses weigh and measure and refer for treatment the children who are 10 per cent underweight. There are no special nutrition classes.

The Boston Sanatorium, which is the city tuberculosis hospital, maintains a summer class on the roof of one of the city's health centres and provides three meals a day to about 25 tuberculosis contact cases. In its new out-patient building, only just opened, a room has been set aside for a food clinic, so that when its new policy develops there is every indication that the nutrition of ambulatory cases will be guided in the light of present methods.

Dr. Emerson's report is a more detailed study of the policy and administration of the tuberculosis hospital of the city, with constructive suggestions for the prevention and care of tuberculous disease. In Boston, this hospital is governed by a Board of Trustees and is not under the administration of the Health Department as are other communicable diseases. Therefore, one of the recommendations of Dr. Emerson is "the transfer of a Division of Tuberculosis in the department of Health of the city, of all phases of the control and prevention of tuberculosis, except the institutional care of the tuberculous sick and preventative care of children, exposed to the disease in their home, which activities should be added to the duties of the Trustees of the Boston City Hospital."

The details of this report are of more or less local importance and Dr. Emerson has little to say on the score of hygiene and nutrition, but rather on methods of organization.

The third survey—that of the Community Health Association—describes the organization of this agency. In considering its program and future policy, it discusses the activities of related public and private agencies which serve as a background and limit and supplement the work of this association. These are the City Health Department, the Department of School Hygiene, the hospitals, the Boston Health League, and other voluntary organizations, which are working in the field of public health. Of these other agencies, the City Health Department in its child hygiene program (which was formerly carried on by the Community

Health Association before being transferred to city auspices) maintains two dietitians. They assist at child health conferences, hold classes, prepare exhibits and give special instructions to individual mothers. The special feature of the Boston City Health Department is the recent development of health units through the generous gift of the White Fund. These health centres provide district headquarters for all the health and social agencies working in the district and lead to close coöperation between all of them.

It is only recently that the School Department has had the services of a nutritionist, but now under the supervision of the Department of School Hygiene such a person has been appointed. She is not a trained dietitian, but a woman physician, who is in charge of the underweight children. As she has only been appointed a short time, she has not developed a complete nutrition program for the whole school system. There has been an attempt to institute a special course in health education at Teachers College, the training school for grade teachers, and it is probable that the nutrition director will give lectures on the problem of adequate nutrition in this course.

As the parochial schools do not come under the direction of the public school department, their medical and nursing staff do not supervise the physical condition of these children, nor will the parochial schools participate in the city nutrition program.

The nutrition program of the Community Health Association is in some respects unique, and as Professor Winslow puts it "constitutes a valuable contribution to the technique of public health." The work, as directed by Miss Ada Moser, consists in instruction to the nurses, special consultation, classes for pregnant mothers and the compilation of minimum budgets, which are used by other social agencies. She had three assistants to help her in her work, but since the publication of the Emerson report two more nutrition workers have been added. This organization feels that nutrition is very important in a *general family health* program and even in the early days, before the Baby Hygiene Association and the Instructive District Nursing Association amalgamated they supported a Dietetic Bureau.

It is to the nurses that special instruction is given and they in turn in their home visits relay their knowledge to the individual family. Most of the work is with normal diets, or for the usual sickness situation, for different age groups, and in the correction of faulty food habits. Miss Moser is always available for consultation and plans the work with the idea that the nurses can teach good nutrition in the average family.

The nutritionists give the nurses the material and show them how to use it. "In carrying out this program, the work is divided as follows: the nutrition supervisor is in charge and supervises the program as a whole, conducts classes for the nurses, works in the stations to which no special nutritionist is assigned, supervising the nurses and carrying special cases intensively."

To the hospital dietitian these three surveys show the close relation of nutrition to a public health program and the need for teaching both client and nurse the fundamentals of normal diet. Outside the hospital, as well as inside its wards their field spreads out and their opportunity is before them. To the detitian in community service, these surveys show the need of coördinating social, medical and nursing care. Her opportunity is to fit into existing organizations and work with existing personnel for the better health of individual and family.

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STUDIES OF INORGANIC SALT METABOLISM

I. The Ward Routine and Methods

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From the Medical Service of the Massachusetts General Hospital

It is well known that a metabolic observation is only as strong as its weakest link. This is usually the hospital ward. Therefore, we have tried to make this approach the chemical laboratory in accuracy by extreme care in ward routine and the preparation of diets. By giving a detailed description of the routine developed in the Special Study Ward[1] of the Massachusetts General Hospital during the past two years, we hope that others conducting similar experiments may avoid some of the difficulties we have encountered.

WARD METHODS

The present ward consists of five two bed rooms, eight beds being used for adult patients and two for children. The ward is located on the south side of the building so that the patients have the benefit of the sun the entire day. During warm weather the patients are allowed out on the veranda in front of the ward and are allowed to go about on the lawn. We have tried to create a home-like spirit on the ward. The social service worker helps create this spirit, the librarian keeps everyone well supplied with books and a vocational worker interests the patients in basket-making, weaving, knitting, etc. We assume a most definite responsibility to the patient for the proper treatment of his disease and see that this has precedence over any investigation. Every possible means is taken to make these people happy and comfortable and show them that we are interested in them as individuals rather than as just another interesting case.

They are given the best possible nursing care. This responsibility is assumed by a graduate nurse, who is allowed four pupil nurses as assistants. The head nurse and dietitian have no other duties than to see

[1] The success of the Special Study Ward is to be ascribed largely to the head nurses, Miss Helen Tracy and Miss Augusta E. Brooks, and to the dietitian Miss Constance Fulton, to whom we wish to express our sincere gratitude.

that all work is carried out with the utmost accuracy and that there always exists a spirit of contentment and coöperation among the patients. The accuracy of the work turned out by such a unit is largely dependent upon the painstaking and intelligent work of the dietitian and head nurse.

The patients are usually transferred to the ward from the general service and once our studies are completed they are allowed to return to the original service. When a patient is transferred to the Special Study Ward for calcium excretion studies he is immediately placed upon a diet low in calcium (approximately 0.1 gram per day) but adequate in every other respect. The first few days he is allowed to choose whatever foods seem most attractive from the limited list of foods low in calcium. The patient is impressed with the fact that once a diet is chosen it cannot be changed during the period of study. He is also placed on a constant fluid and salt intake. The patient is required to remain on the same food, fluid and salt intake throughout the period of observation. The necessity of simplicity and constant conditions cannot be over emphasized because these patients not only serve as their own controls but also as controls for others.

During the first few days of adjustment the patient is given detailed instructions regarding the collection of excreta and is constantly reminded that he is allowed only the food and liquids served to him. After the patient has been on this regime 48 to 72 hours he is given 0.6 gram of carmine alum lake in a gelatin capsule at 1 p.m. and then this dose is repeated every three days at the same hour. The carmine usually appears in the feces the next morning, and marks the beginning of the first three day period. We have found carmine the most satisfactory way of separating the stool period and the first stool containing it marks the end of the preceding period. The urines are collected in twenty-four hour specimens from nine o'clock one morning to nine o'clock the next. We use either chloroform or powdered thymol as urinary preservatives. Each period of study covers three days.

Because this diet contains little roughage our patients frequently become constipated. In order not to have this produce marked variations in the duration of each period we employ cathartics of known calcium content such as liquid petrolatum or fluid extract of cascara. If carmine does not appear within twenty-four hours following its administration the patient is given a simple water enema.

Preparation of excreta. The three twenty-four-hour urine specimens are measured separately and then thoroughly mixed in a large carboy.

Just enough hydrochloric acid is added to the urine to make it definitely acid, except when chlorides are to be determined. An aliquot portion of this three day mixture is kept in the ice box for the various chemical determinations.

Medicines	*Calcium content*	*Phosphorus*
Liquid Petrolatum	0.000	0.000
Ca. Lactate (5 gr. tablet)	0.038	
Agar-agar	0.620	
Cascara (Fluid extract)	0.005	
Cascara (per tablet)	0.006	
Aspirin (50 grains)	0.001	
Tap water (Boston)	0.004	0.006
Lugol's Solution	0.027	
Thyroid Extract (Armour's 100 grains)	0.009	
Thyroid Extract (Burroughs & Welcome 100 grains)	0.003	

The three-day stool specimens are thoroughly mixed in a large porcelain evaporating dish and then brought to dryness over a water bath. This porcelain dish is scraped as clean as possible. The dried feces are then transferred and weighed in a small porcelain dish of known weight. If fecal nitrogen determinations are being made an aliquot portion of this sample is saved. The dried stool is thoroughly ashed in an electric furnace at low temperature. This ash is extracted with a 15 per cent hydrochloric acid solution by heating, filtering and the remaining residue is again ashed and extracted, and so on until the amount of residue is negligible. At least two ashings are done routinely. (We use Whatman's ashless filter paper no. 40 for all our work.) This extract of feces is then allowed to cool and if any precipitate forms on cooling, enough hydrochloric acid is again added to clarify the solution. It is then diluted with distilled water to a given volume (usually 250 cc.). Such a specimen can be kept indefinitely for various chemical analyses.

Chemical methods used. All chemical determinations are done in duplicate and rechecked a third and fourth time if necessary. The calcium estimations on both food and excreta are carried out as described in McCrudden's method (1), except that the 200 cc. of urine is evaporated to dryness, oxidized with nitric acid, ashed, and then extracted with 10 per cent hydrochloric acid. The phosphate (2), sulphate (3), and total base (4) methods used are those described by Fiske. All nitrogen determinations are performed according to the Kjeldahl method described in Folin's Manual (5). The ammonias are done by the aeration method of Folin (6). The titratable acidity is done by the Palmer-Henderson method (7). We use the Clark (8) modification of the Kramer Tisdall method for doing all serum calcium determinations. The phosphate

(2) and total base (4) content of the serum are determined by the Fiske methods.

Preparation of the low calcium diet. The phosphorus and calcium content of all foods and medicines used during the period of study were determined in our own laboratories by the aforementioned methods. In table 1 we have a comparison of our figures with those of Sherman (11) and Keith (12). As will be seen from this table there is considerable variation in the mineral content of certain foods whereas the analyses of others check surprisingly well. As a further check in our work a whole day's diet is analyzed from time to time to see how closely it checks with the calculated mineral content. The actual calcium content of such a diet is generally lower than the calculated. For instance, the calculated calcium content of one day's diet was 113 mgm., whereas the actual determination was 105 mgm.

All these diets are prepared in a small diet kitchen located on the ward. The dietary work is carried out under the direction of the dietitian who is assisted by a pupil nurse and a general kitchen helper. In the preparation of the food all the accuracy and careful technique of the chemistry laboratory is employed. Liquids are measured in graduated cylinders and medicines in minim glasses. Balance scales accurate to one tenth of a gram are used for weighing. In order to avoid errors between the diet as calculated and the actual food consumed by the patient, whenever possible the food is weighed, cooked and served in the same dish. We have found high glazed Hall China casseroles and custard cups and pyrex glass are most satisfactory for this purpose. Each dish has its weight recorded on it with heat and moisture-resistant-enamel. By using this method it is possible to weigh back accurately any food returned by the patient. Errors due to the difference in weight of the raw and cooked foods are prevented by determining the percentage relation of the raw to the cooked food. Example: 100 grams of raw steak loses approximately 12.5 grams in weight in the process of broiling. Thus the factor in this case would be 1.14. Miss Fulton has worked out a table for the various foods used in making up the diet and by multiplying the weight of a given food returned by its factor, the actual weight of the food eaten is obtained. Thus, if a patient returns 20 grams of steak, rather than deduct the 20 grams from the original total amount given, it is first multiplied by its factor 1.14 which in this case would mean we should deduct 22.8 grams rather than 20. All uneaten food is therefore weighed and multiplied by its factor. This value is then deducted from the amount served and the resulting figures entered upon the patient's chart.

TABLE 1

Food analysis (grams per 100 grams)

TYPE OF FOOD	CALCIUM CONTENT (GRAMS PER 100 GRAMS)			PHOSPHORUS (GRAMS PER 100 GRAMS)	
	M.G.H.	Sherman	Keith	M.G.H.	Sherman
Apple	0.010	0.007	0.117	0.012	0.018
Bacon (broiled)	0.030	0.009	0.006	0.096	
Banana	0.007	0.009	0.006	0.043	0.031
Bread (milk free)	0.011			0.082	
Bread (regular)	0.041	0.027	0.040		0.093
Bread (Graham)	0.060	0.050			
Chicken (white)	0.016			0.164	
Chicken (dark)	0.020			0.158	
Corn (canned)	0.005	0.020		0.043	0.283
Crackers (graham)	0.025			0.111	
Crackers (Uneeda)	0.022				
Farina	0.013	0.021		0.105	0.125
Ginger ale (M.G.H.)	0.0006			0.001	
Ginger ale (Cliquot)	0.0005				
Ham	0.022				
Honey	0.004	0.004		0.018	0.019
Lactose	0.004			0.004	
Liver	0.006			0.275	
Low calcium fudge	0.003			0.008	
Macaroni	0.018	0.022	0.036	0.130	0.144
Orange juice	0.029	0.029	0.015	0.017	0.016
Peaches (dried)	0.007	0.034			0.146
Potato (raw)	0.011	0.014	0.005	0.0475	0.058
Potato (steamed)	0.011			0.0475	
Rice (uncooked)	0.007	0.009	0.020		0.096
Rice (cooked)	0.006			0.075	
Shredded wheat	0.038	0.041		0.318	0.324
Steak (rd. fat)	0.008	0.009	0.006	0.172	
Steak (rd. lean)	0.008			0.172	
Tomatoes (canned)	0.005			0.042	
Tomatoes (fresh)	0.007	0.011	0.006	0.055	0.026
Sugar	0.000	0	0		
Washed butter	0.000			Trace	
Turkey	0.008			0.212	
Goose	0.012				
Cranberries	0.013				
Chocolate	0.067	0.092		0.430	0.455
40 per cent cream	0.069	0.086			0.067
Klim	0.996				
Vegex	0.019			1.170	

As an aid to the uniformity in the end food products, all cooking except boiling is done by using a thermometer and maintaining the same temperature each time. No cooking is done by the boiling process, pressure

cooking having been substituted and in this way we are assured of a minimal mineral loss. Sugar and salt are served in weighed amounts in sealed envelopes. No condiments are allowed on this diet.

TABLE 2

Low calcium diet for Mr. W. S. Age 45. Weight 80.3 kilos. Diagnosis: Myositis ossificans

	grams
Breakfast	
Bacon	30
Low calcium bread	60
Butter fat	20
Apple (raw)	100
Sugar	20
Potato	150
Coffee	200
Dinner	
Steak	100
Potato	100
Corn	100
Low calcium bread	60
Butter fat	15
Sugar	20
Banana	100
Tea	200
Supper	
Chicken (white meat)	45
Rice	75
Tomatoes	100
Low calcium bread	60
Butter fat	15
Sugar	30
Apple (cooked)	100
Honey	30
Tea	200
2:30 p.m.—ginger ale	200
NaCl for day	3.0
Total calories	2345
Calculated calcium content	0.113
Actual calcium content	0.105
Calculated phosphorus content	0.781
Actual phosphorus content	0.772

In tables 2 and 3 are shown duplicates of diets given two patients during their period of study on the Metabolism Ward. W. S. (table 2) remained on this diet for 42 days whereas F. S. (table 3) remained on her

diet for 9 days. Neither patient became disgruntled or required any change in diet during the study period. Recipes for low calcium bread, low calcium fudge and washed butter as used in our diets are given at the end of this paper. We use washed butter because it does not contain calcium or phosphorous.

TABLE 3

Low calcium diet for Miss F. S. Age 53. Weight 60 kilos. Diagnosis: Osteitis deformans

	grams
Breakfast	
Low calcium bread	30
Butter fat	5
Apple	100
Orange juice	55
Coffee	200
Dinner	
Steak	100
Potato	100
Tomatoes (fresh)	150
Low calcium bread	30
Butter fat	10
Banana	100
Tea	200
Supper	
Chicken (white meat)	45
Rice	75
Corn	30
Low calcium bread	30
Butter fat	10
Apple	100
Tea	200
2:30 and 8.00 p.m.—ginger ale	400
NaCl per day	2.0
Total calories	1100
Calcium content (actual)	0.100
Phosphorus content (actual)	0.582

Adaptation can also be made of this diet to meet low or high caloric needs. When necessary to increase the caloric intake without appreciably raising the calcium content one can use the low calcium fudge, recipe for which is appended.

The most important point in special study dieting is to induce the patients to eat all of their ration. The fact that the diet is monotonous is sufficient proof that the food must be well prepared and attractively

served. Every effort must be made to please the patient and at times it takes the utmost patience and tact to enlist the patient's coöperation. Notwithstanding the lack of variety the patients have accepted the diet well and have remained on it for periods of 2 to 15 weeks without much dissatisfaction. Oftentimes there exists among the patients a spirit of competition and good natured rivalry as to who could keep the best record of unreturned food.

In calculating a low calcium diet one must bear in mind some of the following points: (1) One must make all possible adjustments to tastes of the patient as well as the disease he is suffering from. (2) One must always consider the age and activity of the patient. (3) All patients are kept in nitrogen equilibrium if possible—this is usually accomplished by placing them on a protein intake of $\frac{2}{3}$ to 1 gram per kilogram body weight. If desired, one can determine the nitrogen excretion during the first few days of adjustment and thus know whether nitrogen balance is being maintained.

We have now 46 three day control periods obtained from normal people or people apparently normal except for the fact that some of them were suffering from chronic lead poisoning. Most of this control series were obtained from male patients studied by Aub and A. S. Minot (13), who used this same diet in the treatment of lead poisoning during the process of "deleading." There is a considerable variation between the urinary and stool calcium excretion in normal people. Thus one can see that in order to obtain an accurate knowledge of the calcium excretion it is necessary to determine both the urinary and fecal calcium. On an intake of 0.410 gram of calcium the maximum excretion was 1.970 gram giving a negative calcium balance of -1.560 gram. The minimal excretion was 0.380 gram on an intake of 0.245 gram resulting in a negative balance of -0.835. The average intake for these 46 normal controls was 0.330 grams whereas the average excretion was 0.790 gram leaving a negative balance of -0.460 gram. The average urinary excretion was 0.190 gram and the average fecal excretion was 0.600 gram. These control periods were practicaly all obtained from male patients so perhaps our normal controls are higher than might be found in the case of most women. We compare our results obtained from any disease with this group of normals.

We have used this diet in studying the calcium and phosphorous metabolism in cases of hyperthyroidism, myxedema, toxic adenoma, osteitis deformans, cases with high and low basal metabolic rates due to other causes than thyroid disease, acromegaly, Addison's, osteomalacia, para-

thyroid tetany, ostosclerosis, and other diseases. We have also used it in studying the total acid-base balance in nephrosis, hyperthyroidism, myxedema and a case of myositis ossificans before, during, and after paratharmone.

SUMMARY

1. The methods employed in the Metabolism Ward of the Massachusetts General Hospital are outlined.

2. A description of the method of collection and preliminary preparation of excreta is made.

3. The detailed preparation of a low calcium diet is described.

4. A list of analyses of certain foods for calcium and phosphorous with a comparison of other tables is given.

5. The individual variations in calcium excretion and the average negative calcium balance obtained in normal people on a low calcium diet are stated.

6. Recipes which we have found to be of great use in this type of diet are appended.

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RECIPES

Washed butter: Melt one pound of butter in the upper part of a two quart double boiler over boiling water. Add 1½ quarts of boiling water and mix well by stirring, then set aside to cool. When cold break up the hard crust of butter on the surface of the water. Then put it in a very fine mesh wire strainer and wash thoroughly with ice water until the wash water is clear.

Low calcium bread:

	grams
Flour	435
Water	260
Butter fat	10
Sugar	10
Yeast	5
Salt (C.P.)	5

The quick dough method of preparation is used. The baking temperature is kept at 430 degrees Fahrenheit for thirty minutes then the temperature is decreased to 380 degrees for fifteen minutes.

Low calcium fudge:

	grams
Sugar	200
Water	150
Chocolate	10
Butter fat	10

A cooking temperature of 240 degrees Fahrenheit is used.

NUTRITION ROUND TABLE OF THE MASSACHUSETTS DIETETIC ASSOCIATION

REPORTED BY JEAN REYNER, B.S.

December 14,1926.

It was with great interest that the members of the Massachusetts Dietetic Association heard something of the many kinds of dietetic work being carried out in greater Boston.

The aim of the Round Table was to acquaint the members with the scope of the field so that the hospital dietitian might know what those in the nutrition field were doing and vice versa.

Due to the limited time at our disposal, the work had to be grouped and each member reported not only the high lights of her own particular work but also of her allied fields of endeavor. The practice of Dietetics was divided under the following headings:

Hospitals (Intra)
Hospitals Out-patient
Nurses Training Schools
Nursing and Health Units or Centres
Dental Work
Nursery Schools, Settlements and Kitchens
Relief Organizations
Commercial: Tea Rooms, Restaurants, Employees' Cafeterias
Education (not schools)
School Work
State and Extension Work

Miss Thelma Tubbs of the Peter Bent Brigham Hospital represented the intra-workings of the hospital dietary department. Miss Tubbs stressed the large and small hospital, showing the scope of each and pointing out the difference in organization as affected by size.

Miss Gertrude Spitz of the Food Clinic of the Massachusetts General Hospital gave a very clear résumé of the Out-Patient and Dispensary Field. She mentioned the work of the Food Clinics at the Boston Dispensary and the Massachusetts General Hospital and the dietetic work being carried on in the Out-Patient Department of the Peter Bent Brigham Hospital. Miss Spitz emphasized the necessary qualifications of

any Out-Patient Dietitian; pointing out that in order to do successful out-patient work one must be a teacher in every sense of the word.

Miss Marion Floyd, dietitian at the Waltham Nurses Training School, spoke of the fascinating piece of work being carried on there. In reality, the training school is a practise-house for nurses where they are taught the principles of cooking and housekeeping under Miss Floyd's supervision.

Miss Ada Moser of the Community Health Association spoke on the nursing organizations of Boston who employ dietitians or nutrition workers. She spoke of the City of Boston Health Units, who do the Baby and Pre-School Work. The City Dietitian acts as a consultant to the nurses. The Community Health Association employs three dietitians, placing special emphasis on prenatal work.

The work of the nutritionist in the care of the teeth was clearly discussed by Miss Ruth White, nutrition worker at the Forsyth Dental Infirmary. She outlined the routine examination and discussed something of the work. Miss White also mentioned the Health Education Work carried on by students in the waiting rooms of the Infirmary.

Miss M. Louise Elliot of the Neighborhood Kitchen of Boston, covered a large field including Nursery Schools, Settlement Houses and her own work, the Neighborhood Kitchen. It was rather discouraging to hear that no settlement employed a dietitian for health or nutrition work, employing instead Home Economics workers to teach cooking only. Miss Elliot found that no settlements were doing true nutrition work, much of their former field having been taken over by the Pre-School and Baby Clinics of the City of Boston. Miss Elliot then outlined the work of her own Neighborhood Kitchen. Here, underweight school children are given a hot noon lunch and at the same time are taught by health education methods, the rules of health living. Health classes are carried on among the foreign groups, both adults and children.

Mrs. Pauline B. Slater of the Federated Jewish Charities of Boston introduced a rather unique type of work, that of a dietitian in a relief organization. The Federated Jewish Charities has a Bureau of Home Economics whose work divides itself into

(a) Family Work
(b) Clinics and Mothers' Clubs
(c) Research

The organization employs two dietitians and uses students from hospitals and colleges. The aim of the department is to teach individual

cases with the Social Worker. All cases must be carefully analyzed before referring to the Bureau. The special diets of the clients of the Federated are not worked out by the Agency's dietitians. They are usually given by the Out-Patient Departments and Dispensaries, where the client has been sent for medical treatment. The dietitian of the Bureau is responsible only for determining the cost of the diet, that the social worker may include it in the family budget, and for teaching the client how to prepare and carry out the diet in his home.

Miss Oliver, now with Thompson's Spa, gave a birdseye view of the commercial work being carried on by dietitians. The most important positions so held are in tea-rooms, cafeterias (school and otherwise) and a few restaurants. Due to the policy of most commercial firms to withhold information, it is difficult to give data on the work and scope of the dietitian in this field, but is encouraging to know that more and more they are being sought for and employed.

Mrs. Sandwell of the Newton Schools of Newton, Mass., brought a résumé of the work in dietetics and home economics being carried on in that field. The nutrition worker was able to reach the child or student through their cooking classes. The second great influence was the lunch-room. Here, nothing is served that a child should not have and the children are assisted in making the right selection and combination of foods. Much health teaching and education is put over in the cooking classes and such work combined with art and other classes makes a tremendous appeal to the pupil.

Miss Lou Lombard of the Department of Public Health of the State of Massachusetts was ably represented by her assistant, who covered the field of nutrition for the state. The work is grouped under (I) Lectures and Talks with exhibits or moving pictures; (II) Nutrition Clinics; (III) Preparation and Distribution of educational material.

The work of the New England Dairy and Food Council was discussed by Miss Helen Butler. This work is again nutrition from the educational standpoint. Through material, talks, exhibits and moving pictures, all the rules of health are taught in schools, settlements and even in factories and among the foreign groups.

It may be seen that the scope of the dietitian in or out of the hospital is wide and varied. A study of the membership list of the Massachusetts Dietetics Association reveals no additions to the fields already reviewed.

It is interesting indeed to realize just what work "Dietetics" covers and how far reaching is the office of the Dietitian.

OPEN FORUM

An Experiment in Training Social Dietitians

The American Dietetic Association has at various times, at its meetings and through committee reports, devoted much thought to the best methods of training the hospital dietitian and has done much to stimulate interest in providing opportunities for students in more and more hospitals. The training of the social dietitian, who is so useful in dispensaries, family welfare societies, nursing associations and health clinics, has received far less attention. The following account of the way in which the various agencies in Boston, which offer nutritional service to the public, have made themselves available to students is presented in the hope that it will interest those who are engaged in similar experimentation elsewhere. The hospitality of the Boston social agencies is by no means limited to Simmons College students, but our discussion is, for obvious reasons, limited to this group. The generosity of time and effort shown by these agencies in providing field experience for these students, and in conducting the conferences which illuminate and vivify the field work hardly require comment.

Registration in this course, which in the Simmons College catalogue is designated as Dietetics in Social Service, is limited to sixteen seniors in the School of Home Economics who have had suitable preliminary work. The course is under the general supervision of Miss White, who makes the arrangements for the field work and conducts a series of conferences throughout the year, which are planned to unify the work and provide for an exchange of ideas as problems arise in field work. Such topics as the following are discussed, often with the help of a visiting lecturer: types of social agencies and the general relation of the nutritionist to them; characteristics of the effective family visit and the standards for an effective visit; the methods of presenting the normal diet to groups of mothers, the economic and social factors influencing nutrition; the educational methods adapted to different ages; the low-cost pregnancy diet; the minimum budget with detailed planning for a family known to each student through field work; racial dietaries; exhibit material; the clinic approach to the pre-school child and its mother; the organization of work in the agencies doing health work nationally, locally and in the student's own neighborhood.

The students register concurrently in a journals reading course, in a

course in the fundamental principles of social service given by the Director of the School for Social Service, and in courses in Child Care and Home Nursing given by a pediatritian and nurse respectively.

For field work, the student is assigned to three agencies during the year, one each term. The disadvantages in this lack of continuity are self-evident, but it is felt that the course can best give a picture of three fields open to the dietitian rather than train throughout the year for one. The student is enabled to decide, for illustration, whether work in an out-patient department, a nursing association or a relief agency appeals to her most. Whichever she eventually enters she must serve a period of apprenticeship and adaptation.

The word experiment appears in the title of this paper, but the course described has long since passed the experimental stage in so far as the college attitude is concerned. It is now regarded as one of the most interesting and profitable opportunities offered to our seniors. The course happily remains experimental through the eagerness of the agencies to provide for the students experience of the utmost validity.

ALICE F. BLOOD,
Director, School of Household Economics, Simmons College.

THE ORTHOPEDIST AND NUTRITION

The findings of the "Posture Survey" undertaken by the United States Children's Bureau in the school of suburban Boston are soon to be published.

Already, two pamphlets have been issued by the United States Children's Bureau as a part of the survey "that will be useful because of the growing recognition of the value of a posture program."

Posture Clinics. Publication 164. By Armin Klein, M.D.
Posture Exercises. Publication 165. By Armin Klein, M.D., and Leah Thomas.

Further, a posture film or motion picture has been made and the slow motion of the children depicted and the animated skeleton drawings make it valuable for those interested in teaching posture and nutrition. Dr. Armin Klein, director of the posture clinic of the Massachusetts General Hospital and the Health Units of the City of Boston, under whose direction the posture survey was made, submits the following statements as a result of the findings, which are of interest and import to nutritionists. The relations established between nutrition and health and growth lead

to an interest of paramount importance in the health problems of children.

It assumes added interest, however, to the orthopedist who has perceived also the direct relations between posture and nutrition. The examination of children, before any special training in Body Mechanics was given, showed that with poorer posture or body mechanics the percentage of good nutrition steadily decreased, while that of poor and bad nutrition correspondingly increased. It is also worthy of note that no child with bad nutrition had good posture. To be sure, some who had good nutrition did have poor posture. This would only indicate that though good nutrition alone did not insure good posture, good posture apparently did go hand in hand with good nutrition.

Later examination of the same group of children, especially those who had poor posture at the beginning of the survey, showed that most of those who with training improved their posture also improved their nutrition, while most of those who did not improve their posture did not improve their nutrition.

The orthopedist thus may perhaps be excused for his keen interest in the problem of improving nutrition since he has such a potent factor, instruction in good body mechanics, at his disposal to help the nutritionist.

The orthopedist and nutritionist can combine, since there is apparently a direct relationship between posture and nutrition, to lighten the task of the public health educators trying to improve the health and growth of our children.

The Orange and Lemon Market

This year, weather conditions have given the growers a difficult problem in citrus fruit disposal since there has been an excess of the very small size and a shortage of the medium size oranges. The greatest demand is usually for the 216 fruit whether California or Valencia, and in an average growing season, this is patently the best buy for the money. However, with the trade becoming more educated to this fact each year, the wise dietitian will follow closely the on and off seasons in orange and lemon sizes and make the price per case per quantity of juice obtained the controlling factor in her decision.

The best practice is to get absolute facts before buying large quantities of oranges in an off season. These may be obtained by buying a case of 216's and one of 252's, squeezing a dozen from each case and converting the juice obtained into the respective money equivalent at the current market price.

EDITORIAL

American Dietetic Association

The growth and intrinsic value of any profession is greatly dependent on the caliber of its pioneers.

Ellen H. Richards, as the primary instigator of Home Economics was responsible for laying the foundation which proved adequate to support the remarkable development of Home Economics Education. Her vision in devising the solution of this problem in the lives of women was characterized by lofty ideals and a resolute spirit that acknowledged no difficulty as insurmountable.

This same vision and these equally dominant ideals have been carried over into the field of nutrition by the past presidents[1] and leaders of the American Dietetic Association, who have given generously of their time and strength in the establishment of an organization which progressed by leaps and bounds. The very rapidity of its growth has multiplied the problems of leadership and produced new needs before the old were fully recognized.

Fortunately, the JOURNAL, our official publication, was conceived and nurtured by the wisdom of Dr. Ruth Wheeler[2] at the time it was most needed to bring these problems and developments before the individual members; thereby giving us a solidarity of purpose and unity of outlook which years of annual meetings alone could not have evolved. Surely no one can fail to see the value of this as it applies to our future growth, nor hesitate to recognize the direct challenge for genuine support.

It has been a rare privilege for the Massachusetts Dietetic Association to present the September issue of our national JOURNAL not only because we have worked to make its contents representative of the nutrition work carried on in Boston, a city long famed for its medical and educational results, but also because we dare to hope for the attainment of a one hundred per cent JOURNAL subscription backing our leaders in their work for your professional happiness.

JOURNAL COMMITTEE, THE MASSACHUSETTS
DIETETIC ASSOCIATION.

[1] 1917–20, Lulu Graves; 1920–22, Mary DeGarmo Bryan; 1922–24, Octavia Hall Smillie; 1924–26, Ruth Wheeler; 1926–27, Florence Smith.

[2] Dr. Wheeler, by vote of the Executive Committee, October, 1927, was awarded life membership in the American Dietetic Association in recognition of her valuable services.

A Professional Code of Ethics

The American Dietetic Association was founded in Cleveland in 1918 by the pioneers in the field of Hospital Dietetics. From this beginning, an organization has developed with a membership of almost a thousand people. Dietitians from every field are represented—the hospital; outpatient; consulting; commercial, etc. This group have as a common bond their profession. What are we doing to build up the solidarity of this group? Can we strengthen this common bond?

A possible solution might be the appointment of a committee to investigate various codes of ethics with a viewpoint of establishing a code which might be adopted by the American Dietetic Association. It is not necessary or advisable to formulate a series of "Do's and Dont's," but rather to lay down a fundamental principle which can be interpreted into every situation. The idea and purpose of a professional code is expressed in the following quotation from the August, 1926, issue of the *American Journal of Nursing:*

> The purpose of such a code is not to provide rules of conduct covering specific types of situations arising in the practise of a profession, but rather to create a sensitiveness to ethical situations and to formulate general principles which rooted in conviction and supported with enthusiasm, create the individual habit of forming conscious and critical judgment resulting in action in specific situations.

Thelma Tubbs,
Dietitian, Peter Bent Brigham Hospital,
Boston, Massachusetts.

American Child Health Association

The president of the American Dietetic Association, Miss Florence H. Smith, requested me to attend as American Dietetic Association delegate the fourth annual meeting of the American Child Health Association, which was held in the Willard Hotel and the United States Chamber of Commerce, in Washington on the 9th, 10th, and 11th of May.

It was a meeting vibrant with enterprise, enthusiasm and push. To see and hear the many people in different lines studying together the problems of child health was inspiring. Enormous force is being directed to their solution; research for facts is conducted by the national research council, by pediatrists, psychologists, educators in schools and universities and outside them; interpretation and distribution of the information

obtained is broadcast through the country. Progress in child health was reported by national and state organizations. Boy Scouts, Girl Scouts, Campfire Girls, Christian Associations and Playground Associations showed by vivid pictures how they are helping to make healthy children.

Health programs in the schools were discussed, with plans and programs of various medical schools for preventive pediatrics were presented. The president of the American Federation of Labor promised continued coöperation.

Seldom do gatherings of workers from many fields give so deep an impression of force and momentum directed towards a goal so clearly seen.

RUTH WHEELER.

CURRENT LITERATURE

MARJORIE HULSIZER COPHER

American Journal of Diseases of Children:

April, 1927.

P. 618. Respiratory metabolism in infancy and childhood. J. R. Wilson, S. Z. Levine, Helen Rivkin and Frieda Berliner.

May, 1927.

P. 722. Respiratory metabolism in infancy and childhood. VI. The specific dynamic action of food in normal infants. S. Z. Levine, J. R. Wilson, Frieda Berliner and Helen Rivkin.

American Journal of Physiology:

April, 1927.

P. 243. Influence of insulin on liver and muscle glycogen in the rat under varying nutritional conditions. A. D. Barbour, I. L. Chaikoff, J. J. R. Macleod and M. D. Orr.

P. 278. The motility of the intestinal tract in experimental beriberi (rats) and scurvy (guinea pigs). B. A. Plummer.

P. 288. A study of the alimentary tract in experimental scurvy (guinea pigs). E. A. Smith.

P. 347. Human energy metabolism. E. L. Sevringhaus.

P. 355. Human energy metabolism. II. The mechanical efficiency of the body on carbohydrates, fats and mixed diets. M. S. Reynolds, E. L. Sevringhause and M. E. Stark.

P. 391. Blood regeneration of severe anemia. VIII. Influence of bone marrow, spleen, brains and pancreas feeding. The question of organic iron in the diet. G. H. Whipple and F. S. Robscheit-Robbins.

P. 400. Blood regeneration in severe anemia. IX. Influence of fresh and dried fruits. F. S. Robscheit-Robbins and G. H. Whipple.

P. 411. Blood calcium as affected by insulin. J. C. Brougher.

P. 450. Effect of the amount of protein in the previous diet on the nitrogen excretion of the albino rat during a fast. F. A. Hitchcock and A. L. Rawlins.

May, 1927.

P. 485. Gastric motility in vitamin B deficiency in the dog. E. A. Smith.

P. 561. On the metabolism of dihydroxyacetone in pancreatic diabetes. W. R. Campbell and J. Markowitz.

P. 576. Effects of dietary deficiencies on the growth of certain body systems and organs. J. C. Winters, A. H. Smith, L. B. Mendel.

P. 681. Studies in metabolism. V. Inactivity and age, as factors influencing the basal metabolic rate of dogs. M. M. Kunde and M. Nordlund.

P. 702. The synthesis of vitamin E by plants grown in the culture solutions. H. M. Evans and D. R. Hoagland.

June, 1927.

P. 27. Effect of pituitrin administration upon certain phases of carbohydrate metabolism. H. M. Hines, C. E. Leese and J. D. Boyd.

July, 1927.

P. 307. Utilization of dextrose, levulose, and galactose by animal and plant cells, and the antagonistic action of insulin to thyroxin. W. E. Burge and M. Williams.

P. 336. Effect of starvation on the daily consumption of water by the dog. N. Kleitman.

P. 382. Muscle glycogen as a source of blood sugar. S. Soskin.

American Journal of Hygiene:

May, 1927.

P. 201. Thermophilic bacteria in milk. M. O. Eckford.

July, 1927.

P. 448. Effect of ultraviolet radiation on resistance to infection. C. McHill and J. H. Clark.

Archives of Internal Medicine:

January 15, 1927.

P. 60. Detoxification of putrefactive products by the human body. F. W. Power and C. P. Sherwin.

P. 67. Diabetes: A statistical study of one thousand cases. H. J. John.

P. 93. Diet determinations: A graphic method. D. W. Richards, Jr., and A. F. Coburn.

Archives of Pediatrics:

April, 1927.

P. 215. Feeding during the first year, with reference to some of its problems L. Von Meysenbug.

May, 1927.

P. 273. Pasteurized milk as food for the infant. V. E. Levine.

P. 293. Uses of odd carbon fat in infant feeding. P. Horowitz.

P. 320. Irradiated milk powder as an antirachitic. W. H. Eddy.

June, 1927.

P. 368. Coeliac disease. S. A. Levinsohn.

Bulletin of the Johns Hopkins Hospital:

June, 1927.

P. 409. A study of the pre-disease diets of patients with pernicious anaemia. B. S. Cornell.

Hospital Management:

May, 1927.

P. 72. Special dietetic work.

June, 1927.

P. 51. Average daily census and per capita cost for 60 hospitals.

P. 45. How the business manager views the dietitian and her work. F. O. Barz.

P. 72. Food costs at Bellevue. Food service for "specials."

Journal American Medical Association:

April 12, 1927.

P. 1047. Relation of vitamin E to iron assimilation. N. Simmonds, J. E. Becker and E. V. McCollum.

April 16, 1927.

P. 1211. Changes in blood in pernicious anemia treated by a diet rich in liver. W. P. Murphy, R. T. Monroe and R. Fitz.

P. 1236. Iron content of milk. Editorial.

April 23, 1927.

P. 1315. Ultraviolet radiation and its transmission by various substances. C. Sheard.

P. 1321. Frequency of botulism: Report of outbreaks for 1926.
P. 1323. Assimilation of iron.

May 7, 1927.

P. 1462. Vitamin E, the ineffectiveness of curative dosage when mixed with diets containing high proportions of certain fats. H. M. Evans and G. O. Burr.
P. 1485. Danger of irradiative foods. Symptomatology of disturbances in acid-base balance.
P. 1486. Search for anti-rachitic vitamin.

May 14, 1927.

P. 1554. Systolic blood pressure of healthy adults in relation to the body weight. E. G. Huber.
P. 1562. Window glass substitutes.

May 21, 1927.

P. 1626. Diabetes mellitus and concomitant leukemia. J. Glaser.

May 28, 1927.

P. 1705. Malabsorption in deficiency diseases. F. L. Burnett and P. R. Howe.
P. 1715. Intestinal absorption in rickets.

June 4, 1927.

P. 1786. Production, collection, and distribution of human milk. B. R. Hoobler.
P. 1807. Origin of the antirachitic substance, vitamin D.

June 11, 1927.

P. 1895. Diabetic foods.

June 18, 1927.

P. 1943. Diet in treatment of cardiac failure: Report of five cases. F. M. Smith, R. B. Gibson and N. G. Ross.
P. 1947. Antiscorbutic vitamin content of milk of stall-fed cows throughout a year: Probability that ensilage is an important source of this vitamin. F. L. Macleod.
P. 1969. Ergosterol a precursor of the antiscorbutic vitamin.
P. 1970. Diet control in nephritis.
P. 1970. Absorption of vitamin D through the skin.

June 25, 1927.

P. 2028. The treatment of epilepsy in childhood; five years experience with ketogenic diet. H. F. Helmholz.
P. 2038. Vitamin content of human milk.

Journal of Biological Chemistry:

April, 1927.

P. 557. Quantitative studies of vitamins A, B, C, in green plant tissues other than leaves. E. J. Quinn, M. P. Burtis and E. W. Milner.
P. 597. The fate of sugar in the animal body. IV. The tolerance of normal and insulinized rats for intravenously injected glucose and fructose. C. F. Cori and G. T. Cori.
P. 615. The fate of sugar in the animal body. V. A seasonal occurrence of ketonuria in fasting rats accompanied by changes in carbohydrate metabolism. G. T. Cori and C. F. Cori.
P. 695. The fat-soluble vitamin content of hen's egg yolk as affected by the ration and management of the layers. R. M. Bethke, D. C. Kennard and H. L. Sassaman.
P. 751. Antiricketic substance. VI. Distribution of vitamin D, with some notes on its origin. C. E. Bills.
P. 765. Fat-soluble vitamins. XXVII. Quantitative determination of vitamin A. H. Steenbock and C. H. Coward.

P. 781. Influence of light and heat on the formation of vitamin A in plant tissues. K. H. Coward.

May, 1927.

P. 59. Dietary factors influencing calcium assimilation. X. The influence of ultra-violet light upon calcium and phosphorus metabolism in milking cows. E. B. Hart, H. Steenbock, H. Scott and G. C. Humphrey.

P. 113. Quantitative differentiation of vitamins A and D. H. C. Sherman and M. C. Hessler.

P. 153. Human milk studies. I. Technique employed in vitamin studies. I. G. Macy, J. Outhouse, A. Graham and M. L. Long.

P. 175. Human milk studies. II. Quantitative estimation of vitamin A. I. G. Macy, J. Outhouse, A. Graham and M. L. Long.

P. 189. Human milk studies. III. Quantitative estimations of vitamin B. I. G. Macy, J. Outhouse, A. Graham and M. L. Long.

P. 203. Human milk studies. IV. A note on the vitamin B and A content of cow's milk. J. Outhouse, I. G. Macy, V. Brekke and A. Graham.

June, 1927.

P. 389. Acid- and base-forming elements in foods. A correction. J. W. Clark.

P. 483. On the existence of two active factors in the vitamin B complex. W. D. Salmon.

P. 507. A fat formation under abnormal conditions from carbohydrate by the rat, and its relationship to a possible, new dietary factor. L. G. Wesson.

P. 523. Indole derivatives in connection with a diet deficient in tryptophane. R. W. Jackson.

P. 617. Antirachitic and calcifying properties of summer- and winter-produced dry milk, irradiated and non-irradiated. G. C. Supplee and O. D. Dow.

P. 655. Rickets in rats. I. Metabolism studies of high calcium-low phosphorus diets. S. Karelitz and A. T. Shohl.

P. 665. Rickets in rats. II. The effect of phosphate added to the diet of ricketic rats. S. Karelitz and A. T. Shohl.

P. 767. Relation of connective tissue content of meat to its protein value in nutrition. H. H. Mitchell, J. R. Beadles and J. H. Kruger.

Modern Hospital:

February, 1927.

P. 126. Handling dietary problems by the central food service. U. Crawford.

P. 130. Reorganizing the food service in a state hospital. K. A. Pritchett.

May, 1927.

P. 138. Treatment of epilepsy with the ketogenic diet. E. H. Luther.

P. 140. Are hospitals equipped to train dietitians?

June, 1927.

P. 146. How phosphaturia is controlled by diet. G. Baeher.

P. 95. Metabolic division.

P. 148. Standards suggested by dietetic departments. Personnel Management discussed at Teacher's College.

July, 1927.

P. 140. How the Dietary Department of Rochester General Hospital was organized. E. M. Winger.

ASSOCIATION NEWS

CONVENTION NOTES

I. RAILROAD RATES

The Illinois Central Railroad will send at a later date, a letter to each member of the American Dietetic Association, with complete information concerning the Certificate Plan.

A special train will leave Chicago, 11:50 p.m., October 16th, for which reservations can be made through the District Passenger Agent of the Illinois Central.

When purchasing your one way ticket from your home city to St. Louis *be sure* to *ask* your *ticket agent* for a *reduced fare certificate.* This certificate, providing there are 250 in attendance traveling by rail, when validated at St. Louis will permit you to purchase your return ticket to your home city via the same route traveled on the going trip at *one-half fare.*

II. PROGRAM

Monday, October 17th

Morning.—Registration.

Noon—Alumnae Luncheons.

Afternoon—2:30–5:00. General Session. Presiding, Florence Smith.

President's Report.

Where is the Association Going?

Education, Katherine Mitchell Thoma.

Administration, Margaret Gillam.

Dieto Therapy, Kate Daum.

Social Service, Frances Stern.

Evening—Banquet, Celebration of Tenth Anniversary.

Tuesday, October 18th

Morning—8:30– 9:30. Registration.

9:30–12:00. Administration Section.

Noon—Special Interests Round Table Luncheons.

Afternoon—2:30–4:30. Education Section.

Evening—General Session. Presiding, Frances Stern.

The Significance of Nutrition Service in Social Work. Bailey B. Burritt, General Director of the Association for Improving the Condition of the Poor, New York City.

Work of the Red Cross in Disaster. James L. Fieser, Vice Chairman of the American National Red Cross, Washington, D. C.

Wednesday, October 19th

Morning—8:30–9:30. Registration.

9:30–12:00. Therapeutic Section.

The Use of Diet in Cardiac Failure. Dr. F. B. Smith, Head of Department of Theory and Practice of Medicine, University of Iowa Medical School, Iowa City.

Dietotherapy for Ambulatory Cases. Dr. Wm. H. Olmstead, on the staff of Barnes Hospital, St. Louis.

Report of Section Committees:

A Brief Survey of the Demand for Nurses Trained in Dietotherapy.

The Use of Diet in Nephritis.

Afternoon—2:30–3:30. Business Meeting of All Sections.

3:30–5:00. General Session Business Meeting.

Evening—General Session. Presiding, Octavia Hall Smillie.

Relation of Mothers' Diet to Lactation. Dr. Icie G. Macy of the Merrill-Palmer School, Detroit.

The Dietary Importance of the Irradiation of Food. Dr. Henry Steenbock, Professor of Agriculture, University of Wisconsin.

III. TRIPS

Thursday, October 20th (Tentative)

9:00 a.m.–5:00 p.m.

1. Sightseeing. Statler Hotel; Forest Park; Kingshighway at Lindell going by Jewish Hospital, Frisco Hospital, St. John's Hospital, St. Louis Children's Hospital, The Barnes Hospital, St. Louis Maternity Hospital, Washington University Medical School, Shriner's Hospital, Tower Grove Park, Shaw's Botanical Gardens, Chrysanthemum Show; Luncheon 1:30 p.m. International Shoe Company Cafeteria; Koch Sanitarium, U. S. Veteran's Hospital, Jefferson Barracks, Mississippi River. In charge of Miss Mabel Unger, Dietitian and Manager of International Shoe Company Cherokee Cafeteria.

2. Hospital. Statler Hotel, City Hospital, The Barnes Hospital, St. Louis Maternity Hospital, St. Louis Children's Hospital, St. Luke's Hospital, Missouri Baptist Sanitarium, Luncheon 1:00 p.m. Chase Hotel, Jewish Hospital (Central Service), Tea 4:00 p.m. at Jewish Hospital. In charge of Miss Isabel McMenamy, Assistant Dietitian Jewish Hospital.

3. Commerical. Statler Hotel Kitchens, Y. M. C. A. Cafeteria, Town Club Cafeteria, Luncheon 1:00 p.m. at Town Club, Shaw's Garden, Forest Park, Barnes Hospital, Tea 4:00 p.m. In charge of Miss Betty Ryan, Dietitian Bethesda Hospital.

IV. HOTEL RATES

Statler Hotel, 9th and Washington
Single room with bath $3.00 and up
Double room with bath $4.50 and up
Jefferson Hotel, 12th and Locust
Single room with bath $3.00 and up
Double room with bath $5.00 and up
Mayfair Hotel, 8th and St. Charles
Single room with bath $3.00 and up
Double room with bath $5.00 and up
Coronado Hotel, 3701 Lindell
Single room with bath $2.50 and up
Double room with bath $5.00 and up
Chase Hotel, Kingshighway and Lindell
Single room with bath $3.50 and up
Double room with bath $4.50 and up
Y. W. C. A., 14th and Locust
Single room with bath $1.50

Town Club privileges will be extended to all; located on Locust Street between 11th and 12th. Ask for card at Convention Headquarters.

V

The Kansas City Dietetic Association of Missouri has invited all dietitians passing through their city to stop over in Kansas City. Miss M. Ethel Ollis, Dietitian of The Research Hospital, Kansas City, Missouri, will be glad to hear from those desiring to break their journey either to or from the Convention. Arrangements may be made to see the residence section of the city which is uniquely beautiful and reputed to be the finest in the United States. There are also several fine Hospitals in Kansas City which will be glad to welcome visitors at any time.

VI. ALUMNAE LUNCHEONS

Monday, October 17th, is re-union time for student dietitians. Hospitals are planning the attendance of every possible former student at the convention. Which Hospital will have the largest attendance?

REPORT OF JOURNAL COMMITTEE, MASSACHUSETTS DIETETIC ASSOCIATION

The members of the Journal Committee appointed to publish the Boston number of the American Dietetic Association Journal were:

M. Louise Elliott, Neighborhood Kitchen
Alice Van Dyke, Cambridge Hospital
Jean Reyner, Food Clinic, Boston Dispensary
Rosina Vance, Massachusetts General Hospital
Gretchen McMullen, Brunswick Shoppe
Thelma Tubbs, Peter Bent Brigham Hospital
Eva Hunt, Beth Israel Hospital
Hilda French, New England Deaconess Hospital

Gertrude Spitz, North End Diet Kitchen, Mass. General Hospital, Out-Patient Department
Margaret McGovern, Boston City Hospital
Quindara Oliver, Thompson's Spa, Chairman

Monthly meetings of the Journal Committee were held at the Brunswick Shoppe from January through July. Each member of the Committee was personally responsible for soliciting or writing an article and in helping in every possible way to assure the success of the publication. The response accorded their efforts by the Doctors, Educators and Professional and Business men of Boston proved both gratifying and inspiring. In July, the collected material was turned over to the Editorial Committee, Jean Reyner and Gertrude Spitz, who did notable work in outlining the general form of the Journal, and the final draft of the papers, while Frances Stern was unstinting in her advice and help and of invaluable assistance in every way.

The standing Committee for securing local Journal subscriptions composed of Alice Van Dyke, Cambridge Hospital, Chairman, Eleanor Dearborn, Boston City Hospital, and Kathryn True, Veterans' Hospital, West Roxbury, have secured thirty new subscriptions, bringing the total for the Massachusetts Dietetic Association membership up to 67, with a carefully organized plan to make it 100 per cent before the new year, while the standing committee for securing new local advertisements, composed of Rosina Vance, Massachusetts General Hospital, Chairman, Doris Keller, Peter Bent Brigham Hospital, and Martha Hubbs Stuart, Children's Hospital, have a gratifying report of six new advertisers using half to full page space for the year.

The entire project has proven the wisdom of Dr. Ruth Wheeler's suggestion at the time of the publication of the Iowa number, in proposing local group responsibility for different numbers, as it has helped to further a spirit of understanding and coöperation in the membership of the Massachusetts Dietetic Association which would be difficult to surpass.

WASHINGTON DIETETIC ASSOCIATION

The March meeting of the Washington Dietetics Association was held at the home of Miss Martha Dressler, Associate in Foods at University of Washington. Miss Ruth Lusby explained the system of Forms and Records used in the management and buying at the University Commons. A business meeting was held, some important committee work being reported. The hostess served a chafing dish supper, which proved a clever demonstration of artistic food preparation and service.

On June 17th a dinner meeting was held at the Pine Tree Inn, Seattle, fifteen members being present. Miss Effie Raitt gave a report of the meeting of the California Dietetics Association, held in Los Angeles May 31st to June 3rd. Miss Martha Dressler reviewed the History of Etiquette, illustrating her talk with quotations and illustrations from various rare old books. Miss Mabel Flanley gave a bibliography of current scientific literature. The Home Economics faculty, superintendents and dietitians of outstanding hospitals of Seattle and Tacoma have arranged to offer a student dietitians training course. Miss Flanley reported that copies of the outline for the course had been sent to Home Economics Departments of the universities of the Northwest. It was decided that the August meeting be a picnic and purely a social affair.

The hospital dietitians of Seattle and Miss Martha Dressler met at luncheon at Seattle General Hospital, June 23rd for the purpose of further discussion of standardization of hospital diets. This standardized diet list when complete will be used in the general hospitals and in the foods courses for student nurses at the university.

ONTARIO DIETETIC ASSOCIATION

The final business meeting of the year was held in May when a new executive was elected for 1927–1928. The officers for the coming year are:

Hononary President: Miss Laird.

President: Mrs. C. H. Burns.

Past President: Miss C. Hazlett.

Recording Secretary: Miss Edna Parks.

Corresponding Secretary: Miss Florence MacDonald.

Treasurer: Miss Alice Edwards.

Committee: Miss Porter, Miss Ryley, Miss Willard.

Miss Laird, as professor and head of the Department of Household Science, University of Toronto, is well known here and abroad. Mrs. Burns has had varied experience in dietetics and holds a responsible position at the Toronto General Hospital, which she has served for some ten years. Mrs. Hazlett was one of the Dietitians who came to the front during the War. She is now supervising dietitian of the remaining military hospitals in Canada, with headquarters at Christie St. Hospital, Toronto. Miss Edna Parks, M.A. has been for the past ten years on the staff of the Department of Household Science, University of Toronto. Miss Florence MacDonald with some eight years' experience in military and civilian hospitals, is now Dietitian at Wellesley Hospital, Toronto. Miss Alice Edwards is head of the popular Y. W. C. A. Cafeteria, Toronto. Miss Alice Willard, Ph.D. (Chicago) is a new member of the staff of the Department of Household Science, University of Toronto. Miss M. Porter, supervising dietitian of Toronto General Hospital, is joint author with Dr. Campbell of a much used text book on Diabetes. Miss Ryley is well-known throughout Canada as the organizing dietitian of the Military Hospitals during the War. Her achievements since then in various commercial enterprises rank her as one of the most successful practicing dietitians. She is at present with the T. Eaton Company, Toronto.

The most important business, enacted at the last meeting of the association was the unanimous decision to raise the membership requirements of the Ontario Dietetic Association to conform with the new standard of the American Dietetic Association. At the same time it was decided to apply for affiliation with the American Dietetic Association.

Now that the membership question is definite, we feel the way is open to proceed with other matters which have been in abeyance. During the last year much has been done by getting together to discuss mutual interests, and understanding one another. More remains to be done to consolidate our purposes and undertake progressive work as a professional body.

Some of the partly fulfilled aims of the Ontario Dietetic Association are as follows:

To make it of service and value to Dietitians in smaller cities throughout the province, as well as in Toronto.

To make it of use as a medium between Graduates of recognized schools and possible employers of dietitians.

To raise the standards of Dietetics and Dietetic teaching in the Hospitals.

To notify schools and Hospitals of membership requirements of the professional organization so that girls may be saved loss of time and disappointment from unknowingly embarking on a dietetic career with insufficient training.

To make an extensive study of dietetic problems among ourselves at regular meetings, following a programme for the year, this to supplement outside speakers who would be invited as formerly.

BALTIMORE DIETETIC ASSOCIATION

After the continued efforts of several Baltimore Dietitians a local Dietetics Association was formed. The constitution was adopted in January. There are twenty active members and the meetings have been most enthusiastic. Miss Phyllis Dawson Rowe, Chief Dietitian of the Johns Hopkins Hospital was elected President and with her interest and enthusiasm for the new organization we hope to see a great deal accomplished not only locally but for the National Association as well.

Dr. Nina Simmonds is spending the summer traveling in Europe with Mrs. Agnes O'Dea, Dietitian at the Emma Willard School, Troy, New York.

Miss Ernestine Becker, who is associated with Dr. E. V. McCollum, is teaching Nutrition in the summer school at Cornell University.

Miss Alfreda Honeywell, Assistant Dietitian at the Johns Hopkins Hospital, and instructor of student nurses for three years, has taken a position as Nutrition worker in the American Red Cross, York, Pennsylvania.

Miss Trevor Colton, formerly Dietitian at the Union Memorial Hospital in Baltimore was married June 1, 1927 to Mr. Rudolph Floyd, of New York.

Miss Tille Pitzele, former Dietitian at the Home for Incurables in Baltimore is now assistant dietitian at the Albert Merritt Billings Memorial Hospital in Chicago. Miss Pitzele completed the Post Graduate Course in Dietetics at the Johns Hopkins Hospital in January, 1927.

Miss Edna Henderson, who completed the Post Graduate Course in Dietetics at the Johns Hopkins Hospital last January, is doing institutional work at the University of Maryland, College Park, Maryland.

Miss Evelyn Engdahl completed the Post Graduate Course in Dietetics at the Johns Hopkins Hospital in June. After a six weeks vacation in Spokane, Washington, Miss Engdahl will return to Johns Hopkins Hospital where she has been appointed as an assistant dietitian.

PHILADELPHIA DIETETIC ASSOCIATION

The Annual Meeting of the Dietitians' Association of Philadelphia was held at the new Nurses Home of St. Joseph's Hospital, April 26, 1927.

Committee reports given included that of Mary H. Thorpe, chairman of the membership committee, reporting 44 new members—representing twenty-five different schools. Gertrude Peabody reported for the program committee and told of the interesting dinner given by Good Housekeeping Institute in Washington, D. C.

Sisters Alexius and Alphonsa as hostesses invited the members to tour the new Nurses Home and refreshments were served in the Nurses Cafeteria.

The officers for the coming year are:

President: Helen E. Gilson, Chief Dietitian, Pennsylvania Hospital.

Vice President: Rose Baker, Assistant Professor Home Economics, Drexel Institute.

Secretary: Elizabeth Miller, Chief Dietitian, Philadelphia General Hospital.

Treasurer: Marjorie E. Bacheller, Director of Cafeteria, Temple University.

The three members for the Executive Committee:

Term expiring April, 1928: Margaret Crozier, Supervisor Division of School Lunches.

Term expiring April, 1929: Pauline Robinson, Dietitian First National Bank.

Term expiring April, 1930: (Mrs.) H. E. Dickson, at home.

Chairmen for Committees:

Membership: Mary H. Thorpe, Supervisor Division of School Lunches.

Program: Nora E. Yost, owner Yellow Lantern Cafeteria.

Hospitality: Martha W. Stockwell, at home.

Publicity: Dorothy W. Gaunt, Episcopal Hospital.

BRITISH COLUMBIA DIETETIC ASSOCIATION

The second annual meeting of the British Columbia Dietetic Association was held in Vancouver, May 1927, when the annual report was given and officers elected for the ensuing year. During the year, the regular monthly meetings were held, which consisted of addresses and round table discussions on various subjects. In addition to these, however, the organization has had other activities. One feature was the supplying of Insulin to three Diabetic patients. Each of the patients had a very low carbohydrate tolerance and were unable financially to purchase Insulin for themselves.

At Christmas, the Association sent hampers to five patients. These patients were all metabolic cases and owing to reduced circumstances, were unable to get the necessary foods for their diets.

Showers and a dinner were given in honor of two of the members, Miss Maude M. Trood and Miss E. Hazel Munro prior to their marriages.

Funds were raised in aid of the Home Economics Endowment Fund. It might be interesting for the readers to know that the women of British Columbia are endeavoring to raise funds to endow a Chair of Home Economics in the University. In the interest of this movement, the Dietetic Association had as its guest, Miss Effie Raitt, head of the Home Economics Department of the University of Washington. Miss Raitt gave a public address under the auspices of the B. C. Dietetic and Home Economics Associations jointly. The following evening she spoke at a dinner given in her honor by the British Columbia Dietetic Association. Members of the Washington Dietetic Association were invited guests. Dr. Hill of the University of British Columbia and the Vancouver General Hospital was also a speaker on this occasion.

The retiring officers were: President, Miss E. L. Kinney; Vice-President, Miss A. McMaster; Secretary-Treasurer, Miss E. Saunders. The newly elected officers were: President, Miss N. Hansford, Dietitian, University of British Columbia; Vice-President, Miss E. Sipee, Dietitian, Vancouver General Hospital; and Miss E. Saunders, re-elected Secretary-Treasurer.

DISTRICT OF COLUMBIA DIETETIC ASSOCIATION

At a recent meeting of the District of Columbia Dietetic Association, the following officers were elected:

President: Grace H. Hunter, Chief Dietitian, Walter Reed General Hospital.

Vice-President: Ruth Huckins, Head Dietitian, Children's Hospital.

Secretary and Treasurer: Rowena Roberts, Head Dietitian, Sibley Hospital.

The final meeting for the year was held at Walter Reed General Hospital. Subject "Metabolism," the speaker being Captain Fleming, Medical Corps, U. S. Army.

MASSACHUSETTS DIETETIC ASSOCIATION

At the March meeting, held at the Women's Republican Club, Boston, Miss Mabel Bragg, of Technical High School, Newtonville, Mass., gave a very interesting and inspiring talk on the health work done with children in the Newton schools, and incidently with the parents. She emphasized especially the power of example in such teaching, and the need of adults practicing what they preach. She threatened her audience with such questions as, "Do you get eight hours sleep every day?"—"Do you eat green vegetables?"—"How much water do you drink a day?", etc. She spoke of good results obtained with mid-morning lunch in schools, and stressed the necessity of giving this lunch in the middle of session in order not to effect the child's appetite for regular meals.

At the April meeting, dinner was served

tor members at the Women's Republican Club, with Dr. Arthur F. Payne, Ed. D., Harvard, Consulting Physiologist, N. Y., as guest of honor. After dinner, Dr. Payne spoke on "Managing Personnel" from the psychological viewpoint. He pointed out clearly the need of selecting the right person for the right job. Best results are not obtained when the person selected has too much or too little intelligence for the job. He spoke of the "off" days most of us experience, when people and surroundings irritate us, and warned us that such a reaction on our part is very often reflected in the work of those around us. He urged that we remember that our personnel also have their "off" days with probably just as good psychological reason behind it, such as worry, loss of sleep, etc. Therefore, to secure best results with our personnel, we should have a better understanding of their personalities and interests.

At the May meeting, an administrative round table was held with Evelyn Pearson of Bradford Academy as Chairman. [Interesting statistics[1] were given as to the kind, number, and duties of employees in the housekeeping and food departments of various type institutions. A scale of wages for the different employees was also given. After an animated discussion of these topics, the annual business meeting was held. The following officers were elected for the ensuing year: President, Thelma Tubbs, Peter Bent Brigham Hospital; Treasurer, Hilda French, New England Deaconess Hospital; Corresponding Secretary, M. Louise Elliott, Neighborhood Kitchen; Recording Secretary, Alice W. Van Dyke, Cambridge Hospital; and Parliamentarian, Evelyn Pearson, Bradford Academy. At the close of the business meeting, refreshments were served.

Miss Elgira Nichols, of the Phillips House, Massachusetts General Hospital, gave an interesting talk on "Liver Diets" and "Ways of Serving Liver" at the Staff meeting held in April. An interesting exhibit was arranged showing the different ways in which liver might be served both for a solid and liquid diet. A splendid article on the same subject by Miss Nichols appeared in a recent issue of the *Boston Medical and Surgical Journal*.

Frances Stern and Jean Reyner of the Food Clinic, Boston Dispensary, had an interesting article on the feeding of diabetic patients in relation to their own racial food customs, in a recent issue of the *American Medical Association Journal*.

In May, Margaret McGovern, of the Boston City Hospital, gave a talk over the radio on "Corrective Diet" speaking from Station WEEI, Boston.

[1] "Summary of questionnaire on Dormitory Management," Teachers' College, Columbia University.

SECTION ACTIVITIES

A meeting of the Social Service Section Committee of the American Dietetic Association was held in New York City March 12, 1927. Miss Frances Stern presided with the following members present: Misses Bertha Edwards, Anna L. DePlanta, Helen Nichols, Jean Reyner, and Gertrude Spitz.

The business to come before the Committee was outlined so graphically that lively discussion resulted.

Name: It was suggested that the name of the section could advantageously be changed to include all the services of the dietitian outside the hospital wards. Section names having possibilities were listed:

1. Diet and Nutrition Service in the Community.
2. Community Nutrition Service.
3. Public Health Service.
4. Community Dietetic Service.

It was decided to bring this up for discussion at a Round Table at the annual meeting to be held in St. Louis October 17, 18, and 19.

Questionnaire: It was voted and passed

that the Committee should summarize the 1926 questionnaire for the October meeting instead of sending out a new one.

Round Table: Bertha Edwards was appointed Chairman of the Section Round Table with an active group in New York City to assist her in its organization.

Program and Exhibits: Topics for the program of the section at the annual meeting were discussed and non-commercial educational sources of exhibit material were listed.

Copies of the above were voted sent to the president of the Association, chairman of the Program Committee, and member of the Social Service Section Committee.

FRANCES STERN, *Chairman,*
GERTRUDE T. SPITZ, *Secretary.*

The Administration, Diet Therapy, and Education Sections are all busy with plans for the program for the annual meeting and predict a record attendance. Plan to come to St. Louis and add to the interest and enthusiasm they have prepared for you.

NEWS NOTES

Virginia Bailey writes that she has accepted a position at the Montefiore Hospital, New York City. Miss Bailey took her student work at Johns Hopkins Hospital.

Annie M. Barnett is now at the El Paso Masonic Hospital, El Paso, Texas.

Emilie Boock has given up her position at St. Elizabeth's Hospital, Richmond, Virginia, and may now be reached at her home in West Side, Iowa.

Jessie Brown, formerly the assistant dietitian at the Presbyterian Hospital, San Juan, Porto Rico, has gone to the Jane Lamb Memorial Hospital, Clinton, Iowa.

Ethel Casey writes that she may now be reached at the Valeria Home, Oscawana, New York. She was formerly at the Lebanon Hospital, New York City.

Dorothy Christie has resigned her position at the Fairview Park Hospital, Cleveland, Ohio, to go to the Milwaukee Hospital, Milwaukee, Wisconsin.

Maurene Cisne has completed her student work at Michael Reese Hospital, Chicago, and is now at the Homeopathic Medical and Surgical Hospital, Reading, Pennsylvania.

Blanche Collier has left the Massachusetts General Hospital and may be reached at Sullivan, Illinois, care of Mrs. W. B. Hopper.

Blanche Coyne has been transferred from the U. S. Veterans' Hospital at Dwight, Illinois, to the Edward Hines Jr. Hospital at Maywood, Illinois.

Lottie Crecelius has given up her work at the Passavant Memorial Hospital, Jacksonville, Illinois, due to the illness of her father. She may be reached at Jefferson Barracks Missouri.

Katherine DeWitt is now located at the Multnomah County Hospital, Portland, Oregon.

Blanche Fickle has resigned her position at the Knoxville General Hospital to accept a position with the Kahler Corporation, Rochester, Minnesota.

Hazel Winders Galloway's present address is the Children's Hospital, Hollywood, California.

Florence Hammann has accepted a position in the laboratory of the Certified Food Products Company, 437 W. Ontario Street, Chicago, Illinois.

Helen Hubbell writes that after August first her address will be, 55 West 12th Street, New York City.

Katherine Flagg has taken an assistant's position at the New Jewish Hospital, succeeding Ruth Megchelson who goes to Porto Rico in September as Head Dietitian of the Presbyterian Hospital, at San Juan.

Eva Fleming will be the first Dietitian at the new St. Louis Maternity Hospital which opens this month.

Alice Jenson has accepted a position at the Good Samaritan Hospital, Lexington, Kentucky.

H. Ruth Johnson is now at St. Margaret's Hospital, Pittsburgh, Pa.

Iva Johnston, formerly of the French Broad Hospital, Ashville, North Carolina, has accepted a position at the General Hospital, Spartanburg, South Carolina.

Gretta Lyon has left the Mental Hospital, Brandon, Canada, to take graduate work in the dietary department at Michael Reese Hospital, Chicago, Illinois.

Viola Maag may now be reached at 947 Island Avenue, Milwaukee, Wisconsin. Miss Maag was formerly located at the Bradley Memorial Hospital, Madison, Wisconsin.

Caroline Meadows writes that she has gone as dietitian to the American Hospital, Paris, France. Her former address was the U. S. Veterans' Hospital, Oteen, North Carolina.

Millie Osgood, formerly of the Ashland State Hospital, Ashland, Pennsylvania, is now at the Chester Hospital, Chester, Pennsylvania.

Martha Watter Marshall is now the dietitian at the Lutheran Hospital, St. Louis, Missouri.

Hattie E. Pearson may now be reached at 9 Clinton St., The Clinton Apartments, Hartford, Conn.

Dixie C. Rudberg, who has been a relief dietitian at the Cleveland City Hospital for the last few months, is now at the Ancker Hospital, St. Paul, Minnesota.

Margaret N. Sumner, formerly of the Butterworth Hospital, Grand Rapids, Michigan, has accepted a position at the Chicago Memorial Hospital, Chicago, Illinois.

Loretto Scanlan is now located at the U. S. Veterans' Hospital, Fort Stanton, New Mexico.

Katheryn True has gone to the William Backus Hospital, Norwich, Connecticut. Previous to this she was at the U. S. Veterans' Hospital, West Roxbury, Mass.

Miss Pye has resigned from her work at the Washington University Clinic, St. Louis, Missouri.

Betty Ryan has resigned from her position at Bethesda Hospital, and will spend the summer motoring in the East.

Mrs. Leo Schaefer, nee Irma Fagan of Salina, Kansas, and her two children, visited in St. Louis recently. Miss Fagan was formerly Head Dietitian at St. Luke's Hospital, St. Louis, Missouri.

Jeanne Wait has accepted the position of dietitian at the Oak Forest Tuberculosis Sanitarium. Previous to this, she was the assistant dietitian at St. Luke's Hospital, Chicago, Illinois.

Frances Ward may now be reached at Unodilla, New York.

Marie Yon, formerly of the Walter Reed General Hospital, has accepted a position at the Letterman General Hospital, San Francisco, California.

Matilda E. Zerner has been transferred to the U. S. Veterans' Hospital at Perry Point, Maryland. She was formerly at the U. S. Veterans' Hospital, New Haven, Connecticut.

Miss H. Ruth Johnson has resigned her position at St. Agnes Hospital, Philadelphia, to accept the position at St. Margaret Hospital, Pittsburgh.

Miss Hortense Lewis, formerly at Jefferson Hospital, Department for Chest Diseases, Philadelphia, has accepted the position at the Woman's Hospital, Philadelphia.

Members of the Dietitians Association of Philadelphia taking trips abroad are: Sister Emma Tappert, Lankenau Hospital; Martha Stockwell; Mrs. Janet Ward, Hahneman Hospital; Eve Garnett, Stetson Hospital.

Idabel Farraday has resigned her position at the Orthopedic Hospital and has planned a motor trip to the western states.

Florence Turner has taken the position at the new Delaware County Hospital, Upper Darby, Pa.

Frances Marshall, who has been relieving for Mrs. Janet Ward at Hahneman Hospital, has taken the position at Chester County Hospital, West Chester, Pa.

Eva Thallman is spending the summer at her home in Texas.

Viola Holmes has resigned her position as Pediatric Dietitian at the Boston City Hospital and is now with White Cross Hospital Association, Columbus, Ohio.

Etta Sadow is with the Hadassah Medical Organization, Jerusalem, Palestine. Her work includes organizing and supervising of dietary departments in the hospitals, teaching of dietotherapy, and instructing the public how best to utilize the foods of the country.

Elizabeth MacDonald, Dietitian of the Thorndike Memorial Metabolic Ward, Boston City Hospital, is resigning in September, as she is planning a year of study.

Evelyn Pearson of Bradford Academy is spending the summer in California.

Blanche Collier, of the Massachusetts General Hospital, out-patient department, is on an extended leave of absence and is abroad for a year or more.

Eleanor Dearborn, Assistant Dietitian at the Boston City Hospital, resigned the first of July. She is leaving the dietetic field and taking up voice work.

Dorothy Bliss, former administrative assistant at Children's Hospital, Boston, has gone to Tewksbury Infirmary as Chief Dietitian.

Elgira Nichols has resigned from the Phillips House, Massachusetts General Hospital, and has returned to England.

Miss Andrews, formerly with the Statler Hotel, Boston, has received the appointment at the Phillips House.

Rachel Gilbert has accepted a position at the Boston Lying-In Hospital.

Mary Elizabeth Thompson, therapeutic assistant at the Massachusetts General Hospital, has resigned.

Announcement of the marriage of Lilas Wright and Patrick Spence was received in May. Miss Wright was formerly assistant dietitian at the Brooklyn Hospital.

Miss Betty Hammett, formerly with the Rockefeller Foundation Hospital, Peking, China, has gone to the Children's Hospital, Boston, as administrative assistant.

Among the Massachusetts dietitians who have announced their engagement are the following: Helen Dean, Robert Brigham Hospital; Elizabeth Benson, Boston City Hospital; Jean Reyner, Food Clinic, Boston Dispensary; and Hazel Kent, Robert Brigham Hospital.

Florence Griffin, Administrative Assistant at the Massachusetts General Hospital, has resigned, and Marion Floyd, formerly of the Waltham Training School, Waltham, has taken her place.

Helen Hinman, who, after her return from Florida, filled in at the North End Diet Kitchen, Massachusetts General Hospital, out-patient department, has accepted the position of Food Director of the Syracuse Y. W. C. A.

We are interested to learn that an old hospital in Montreal, Canada, "General, Providence Maison-Mere" has had central service for approximately the last twenty-five years.

MARRIAGES

Eloise Osborne to Mr. W. W. Abbott on December 22nd, 1926. They are now at home at 206 North Edison Avenue, Tampa, Florida. Mrs. Abbott was formerly the Head Dietitian of the Good Samaritan Hospital, West Palm Beach, Florida.

ATTENTION DIETITIANS!

The Journal of the American Medical Association lists the Mt. Sinai Hospital as the only one giving an accredited course for student dietitians.

NEW MEMBERS

Phyllis Dawson Rowe, Johns Hopkins Hospital, Baltimore, Maryland, has organized a campaign for new members in collaboration with our Business Manager, which is securing very gratifying results. Martha Davis, California, Katherine M. Thoma, Illinois, and Eugenia Martin, Missouri, are also to be commended for their work along this line.

ADDRESSES FROM WHICH MAIL HAS BEEN RETURNED

Childs, Emma.....2301 Maryland Ave., Baltimore, Md.
Eckley, Gladys Norton.....Jackson Park Hospital, Chicago, Ill.
Findley, Isabelle S.....Vancouver General Hosp., Vancouver, B. C., Canada
Fuchs, Emma.....University Hospital, Oklahoma City, Okla.
Goetz, Theresa.....25 Linden Ave., Atlanta, Ga.
Heidinger, Ruth.....1102 N. W. Eighth St., Miami, Fla.
Hopper, Margaret.....Hamilton General Hospital, Hamilton, Ont., Canada
Lawler, John.....210 E. 23rd St., New York City
Lorance, Mrs. Luther M.....611 S. Ashland Blvd., Chicago, Ill.
McConahy, Mrs. Mary Swope.....Golden State Hospital, Los Angeles, Calif.
Moon, Gladys S.....656 Huntington Ave., Suite 18, Boston, Mass.
Pontz, Bess.....Taylor Hospital, Ridley, Pa.
Rose, Marjorie.....Highland Hotel, Springfield, Mass.
Smith, Helen L.....U. S. Veterans' Hospital, West Haven, Conn.

NEW MEMBERS

(April, May, June and July)

Ackley, Wilma.....2826 S. Hope St., Los Angeles, Calif.
*Amerman, Frances M.....Onarga, Ill.
†Angus, Jennie M.....Meriden Hospital, Meriden, Conn.
*Barnett, Annie M.....El Paso Masonic Hospital, El Paso, Tex.
Beshore, Edith.....3435 W. Van Buren St., Chicago, Ill.
Betz, Neva.....John B. Murphy Hospital, Chicago, Ill.
Blakeslee, Elizabeth.....Woodland Clinic, Woodland, Calif.
†Bolsover, Rosamond.....Bloomingdale Hospital, White Plains, N. Y.
Bolzien, Helen.....1900 Bryant St., San Francisco, Calif.
Bowden, Ruth.....1841 Loma St., Santa Barbara, Calif.
*Bradburn, Hazel.....445 N. Union St., Lincoln, Ill.
*Clayton, Pauline M.....Rivermore Apt. 1E, Bronxville, N. Y.
†Conwell, Amy B.....Bushwick Hospital, Brooklyn, N. Y.
Coon, Dorothy M.....Wisconsin General Hospital, Madison, Wisc.
Cruse, Iris.....St. Luke's Hospital, St. Louis, Mo.
†Cummings, Mrs. Laura E.....Highland Hospital, Oakland, Calif.
Daily, Frances.....City Hospital, Akron, Ohio
*Davis, Ruth E.....111 Brushton Ave., Greensburg, Pa.
Degen, Genevieve P.....St. Mary's Hospital, Rochester, N. Y.
*De Hart, Dorothy.....Fifth Avenue Hospital, New York City
Doubet, Una M.....1891 Maud Ave., Chicago, Ill.
Douglas, Mrs. Helen A.....San Francisco Hospital, San Francisco, Calif.
Dunkle, Florence B.....University Hospital, Iowa City, Iowa

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* Junior Members.
† Associate Members.

Ertz, Jeanette L. ..... Parkview Sanatorium, Minneapolis, Minn.
†Findley, Isabelle S. ..... Vancouver General Hospital, Vancouver, B. C.
*Fleming, Eva ..... Barnes Hospital, St. Louis, Mo.
Fogg, Elizabeth D. ..... California Lutheran Hospital, Los Angeles, Calif.
Franks, Thelma ..... St. Luke's Hospital, Denver, Colo.
Giebelstein, Lillian ..... 1100 Mission Road, Los Angeles, Calif.
†Gilmour, Mrs. Rae Snow ..... Rose Acres, Hayward, Calif.
†Goldthorpe, Jeannette R. ..... Minneapolis General Hospital, Minneapolis, Minn.
†Goodrich, Theodora ..... U. S. Veterans' Hospital, Ft. Snelling, Minn.
†Gutzke, Grace E. ..... St. Luke's Hospital, St. Paul, Minn.
Hagstrom, Marion E. ..... Midway Hospital, St. Paul, Minn.
Hall, Leone A. ..... White Memorial Hospital, Los Angeles, Calif.
†Handy, Bessie M. ..... Abilene State Hospital, Abilene, Tex.
Hinyan, Reeya ..... 1414 S. Hope St., Los Angeles, Calif.
Hook, Ruth M. ..... Norwood Hospital, Norwood, Mass.
Hunter, Ruth M. ..... University Hospital, Iowa City, Iowa
*Hunzicker, Beulah ..... 108 Breese Terrace, Madison, Wisc.
Johnson, Beth ..... Childrens' Hospital, Iowa City, Iowa
Johnson, Grace E. ..... Arrowhead Springs Hotel, Arrowhead Springs, Calif.
*Jordan, Flossie P. ..... 1408 Buchanan St., Wichita Falls, Tex.
†Kacerovsky, Agnes ..... U. S. Veterans' Hosp., No. 68, Minneapolis, Minn.
Kessler, Lillian Burch ..... St. Francis Hospital, San Francisco, Calif.
Konop, Kathleen ..... Wisconsin General Hospital, Madison, Wisc.
†Kretsch, Elmere ..... U. S. Veterans' Hospital, Ft. Snelling, Minn.
†Lagarde, Mrs. Edith ..... Hotel Dien, New Orleans, La.
Lantz, Edith M. ..... University of California Hosp., San Francisco, Calif.
Leahy, Ella M. ..... Mercy Hospital, San Diego, Calif.
Leitch, Mrs. Jane E. ..... 5330 Delmar Blvd., St. Louis, Mo.
McKean, Bozena ..... Glen Lake Sanatorium, Oak Terrace, Minn.
*MacDonald, Gretna ..... 84 West St., Battle Creek, Mich.
†Malcolmson, Mabel ..... Stanford University Hosp., San Francisco, Cal.
Megchelsen, Ruth ..... Jewish Hospital, St. Louis, Mo.
Millard, Emma S. ..... Barnes Hospital, St. Louis, Mo.
Misch, Alvina E. ..... University of California Hosp., San Francisco, Calif.
Murphy, Mary B. ..... Glen Lake Sanatorium, Oak Terrace, Minn.
*Murtaugh, Mary ..... Colfax, Ind.
*McMillan, Mrs. Carroll M. ..... 129—6th Ave., E., Calgary, Alta., Canada
Nelson, Martha V. ..... Childrens' Hospital, Iowa City, Iowa
*Nestle, Shirley E. ..... 6620 University Ave., Chicago, Ill.
Park, Ruth M. ..... Montreal General Hospital, Montreal, Canada
*Patterson, Margaret ..... St. Hilaire, Minn.
Powley, Louise W. ..... Virginia Mason Hospital, Seattle, Wash.
Resch, Helen L. ..... New Haven Hospital, New Haven, Conn.
Rood, Mabel ..... Seaside Hospital, Long Beach, Calif.
*Savage, Ruth A. ..... 613 W. Nevada St., Urbana, Ill.
*Schurigen, Grace W. ..... St. Luke's Hospital, St. Paul, Minn.
†Scott, Susie ..... Alameda County Hospital, San Leandro, Calif.
Shook, Emily ..... Gordon, Nebr.
Simpson, Kathleen M. ..... County Hospital, San Bernardino, Calif.
Smith, Daisy W. ..... Truro, N. S., Canada, Box 795
Sperry, Florence ..... Midway Hospital, St. Paul, Minn.

Stacey, Helen.....American Red Cross, St. Louis, Mo.
Stoddart, Gladys L.....University Hospital, Augusta, Ga.
†Telford, Mary S.....Vassar Hospital, Poughkeepsie, N. Y.
*Thordarson, Mary.....St. Luke's Hospital, Chicago, Ill.
Tibbits, Erva L.....J. C. Stewart School, Tacoma, Wash.
Toepfer, Margaret L.....Wisconsin General Hospital, Madison, Wisc.
Tolles, Mildred.....Methodist Episcopal Hosp., Omaha, Nebr.
Turner, Clara G.....State Teachers College, Harrisburg, Va.
*Weaver, Mildred V.....Johns Hopkins Hospital, Baltimore, Md.
*Wilkenson, Louise.....Barnes Hospital, St. Louis, Mo.
Wirtenberger, Thelma K.....Gillette State Hospital, St. Paul, Minn.
*Woolworth, Marion F.....120 Boyce Ave., Utica, N. Y.
Yackey, Millicent.....Curtis Publishing Co., Philadelphia, Pa.
†Young, Elizabeth.....Memorial Hospital, New York City

REPRINTS AVAILABLE

These reprints are available at the Business Office of The American Dietetic Association, Room 1122, 25 E. Washington Street, Chicago, Ill.

Arthritis, Carbohydrate Studies in. Martha V. Nelson and Julian S. Boyd..... $.15
Biliary Tract, Some Effects of Diet on the. Glover H. Copher..... .10
Budgeting the Dietary Department and Purchasing Food Supplies. Lucius R. Wilson.. .10
Buying and Meal Planning, Scientific. Quindara Oliver..... .27
Calves' Liver, Preparation of, for Pernicious Anemia Diets. Thelma Tubbs and Elizabeth Bellinger..... .07
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Food Distribution Ledger Sheet. E. A. George..... .08
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